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REMARKS ON PROSTATIC OBSTRUCTIONS OBSERVED DURING A TEN-YEAR PERIOD.*

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This presentation is based upon the records of 761 patients admitted to the University of Virginia Hospital because of prostatic obstruction during the period from January 1, 1926 to January 1, 1936. The available data have been analyzed and tabulated primarily to portray as graphically as possible the admission status of these patients. Illustrative facts have been compressed into percentage tables to allow comparison of selected groups with one another and with the series as a whole. The labor involved will be quite warranted if the implications of the admission status in the field of therapy and its influence upon results are made more evident. Scant attention is given to the details of hospital care. The tabulations will tell no new story to the urologists. The objective, quite frankly, is to encourage thought of prostatic obstruction in terms of renal and systemic damage, plus the ever present possibility of cancer, and not in terms of a vesical nuisance to be accepted as a part of growing old.

DEATHS WITHOUT OPERATION AND AFTER CYSTOSTOMY

The utilization of the compilations to the stated purpose seems quite logical upon consideration of the 123 hospital deaths for the series. When these are broken down (Table 1) to show the percentage which followed various forms of treatment, one is forcibly struck by the high proportion indicated where there has been no operation and where such a relatively simple procedure as cystostomy has been done, namely, 74 per cent of the list. Errors of omission and commission in the urological handling of the patients are freely granted and have taken their toll. Nevertheless, we seriously doubt if the figures would show any material change were the opportunity afforded to treat these men again. In other words, many had sustained such an amount of renal and systemic damage, from back pressure or infection or malignancy or combinations of these, often in the presence of other serious ailments, that their fate had been sealed before admission.

TABLE 1
DISTRIBUTION 123 DEATHS IN 761 PROSTATICS (16.2%)

No Operation (Benign 122—Cancer 29)	55	44.7%
Cystostomy (Benign 79)	30	24.4%
Cystostomy (Cancer 50)	6	4.9%
Punch (Benign 26—Cancer 8)	1	.8%
Resection (Benign 178—Cancer 22)	10	8.1%
Prostatectomy (Benign 222—Cancer 25)	21	17.1%
	123	100.0%

TABLE 2
DIED—NO OPERATION (55)—BENIGN (43)—CANCER (12)

Death First Week	21	Second Week	15
Mean Age Decade	70-79	Complete Retention	87%
Mean Blood Urea 150 Mg.		Infected Urine	80%

ACCOMPANYING CONDITIONS		IMMEDIATE CAUSE OF DEATH	
Cardiac Decompensation	20	Uremia	20
Uremia	19	Pneumonia	13
Anemia	7	Cardiac Decompensation	7
Pyonephrosis	6	Sudden Death	3
Bony Metastases	6	General Sepsis	2
Diverticulum Bladder	5	Apoplexy	2
Apoplexy	4	Erysipelas	1
Diabetes	2	Thrombosis Pul. Artery	1
Compression Myelitis	2	Peritonitis	1
Pulmonary Tuberculosis	1	Abscess Mediastinum	1
Paralytic Ileus	1	Cancer Stomach (P.O.)	1
Carbuncle Neck	1	Anuria	1
Cancer Stomach (P.O.)	1	Senility	1
Bacillary Dysentery	1	Carcinosis	1
Stone Kidney	1		
Polycythemia	1		
Polycystic Kidney	1		

*From the Department of Urology, University of Virginia.

Read at the sixty-seventh annual meeting of the Medical Society of Virginia in Staunton, October 13-15, 1936.

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It is not difficult to comprehend why this should be true when an average clinico-pathological picture is visualized from significant figures for the two groups (Tables 2 and 3). These suggest a man of about seventy-five who has had increasing difficulty in voiding and an abnormal frequency of urination for four years. His bladder has been emptied less and less completely during the period in spite of its best efforts. For weeks or months it has probably been distended to or near the level of the umbilicus even though the patient had been "passing a lot of water." Acute retention or paradoxical incontinence has developed some time previous to or by the date of admission. The kidneys have gradually become unable to function efficiently against the increasing pressure from below and hence have permitted sys-

TABLE 3

DIED—CYSTOSTOMY (36)—BENIGN (30)—CANCER (6)

Mean Age Decade	70-79
Complete Retention	91%
Mean Duration Symptoms	4 Yrs.
Mean Blood Urea	100 Mg.
Infected Urine	75%

ACCOMPANYING CONDITIONS

Cardiac	15	Metastases Bone	2
Anemia	7	Renal Malignancy	1
Uremia	5	Rupture Urethra	1
Diverticulum Bladder	3	Stone Bladder	1
Stricture Urethra	2	Gastric Ulcer	1
Apoplexy	2	Cancer Lung	1
Cancer Bladder	2	C.N.S. Lues	1

IMMEDIATE CAUSE OF DEATH

Uremia	11	Pulmonary Embolus	2
Pneumonia	7	Apoplexy	1
General Sepsis	6	Parotitis	1
Cardiac	3	Intestinal Obstruction	1
Pyelonephritis	3	Paralytic Ileus	1

temic accumulation of various toxic end-products normally excreted through the renal pathway. As a measure thereof, blood urea estimations give readings between 100 and 150 mgm. per 100 cc. instead of the normal 30 to 40 mgm. Infection has probably long since occurred in the retained urine and may well have involved the whole urinary tract. An insidious toxemia has resulted, usually from both factors, to explain failing mental powers, change of personality, loss of strength, malfunction of the gastro-intestinal tract and so on. The cardio-vascular apparatus, already impaired by the wear and tear of the years but functionally capable, has begun to fail and signs of decompensation have made their appearance. The patient is received in the clinical state of uremia or one approximating that.

Of course all patients fitting this description do not die. The outcome hinges largely upon whether there has been actual destruction of renal tissue by back pressure and infection or mainly a functional embarrassment. When the blocking prostate is cancerous, with or without demonstrable metastases, the gravity of the threat to life is all the more obvious. Cancer aside, an amazing number do survive and may even ultimately undergo a successful radical removal of the obstruction. But a goodly percentage are doomed from the outset. They die within a few days after their admission, or following a later cystostomy, most often from uremia, pneumonia, sepsis or cardiac decompensation. In the ten-year series there were three such deaths to one attributable to major prostatic operations.

Such a disproportionate mortality testifies without further comment to the large part played by delay and neglect in the death rate from prostatism. Elderly men are all too prone to ignore the early evidence of obstruction and to seek help only when their symptoms are aggravated or retention is imminent. By some means they must be taught the risk which they may incur in postponing medical consultation. This education will be accomplished with difficulty but without it the largest problem of prostatism will remain unsolved.

CANCER

One hundred and thirty-four, 17.6 per cent, of the 761 histories reviewed carried the diagnosis of prostatic cancer. Less than 10 per cent of the patients were referred to the hospital so diagnosed. Combined cystoscopic and rectal examinations did not suggest a malignant change to us in approximately 20 per cent of the group. The carcinoma was demonstrated only upon histological study of tissue obtained by prostatectomy or resection and usually, in these instances, there was an associated benign hypertrophy.

In fully 70 per cent of all cases, however, characteristic changes were evident to rectal palpation. Typical findings were a hard, nodular, fixed gland, often with extension through the capsule and sometimes sufficient to form an encircling occlusion of the rectum. Routine X-ray examination of the lumbar vertebrae, pelvic girdle and upper ends of the femurs revealed bony metastases in 24 per cent. No doubt films of the entire skeleton would have given a higher incidence. Pulmonary metastases

were shown in three patients and involvement of lymph nodes—supra-clavicular, axillary or retro-peritoneal—in seven. A very small proportion of the cancer group came to autopsy and even an estimate of the frequency of spread to retro-peritoneal nodes is not possible.

Selected statistics for the benign hypertrophy and cancer groups have been placed in parallel columns for comparison (Table 4). No important differences are shown save that, as would be expected, a smaller percentage of patients with cancer had had symptoms over a long period of time. Attention should be drawn to the occurrence of cancer in five men

TABLE 4

	BENIGN GROUP (627—82.4%)	CANCER GROUP (134—17.6%)
RACE		
White	80.6%	76.0%
Colored	19.4%	24.0%
AGE		
40-49	1.9%	4.5%
50-59	15.0%	10.5%
60-69	39.3%	40.0%
70-79	33-6%	33.7%
80-89	10.2%	10.5%
90-94	0.0%	1 Case
DURATION OF SYMPTOMS		
8D - 6M	15.0%	27.7%
6M- 1Y	10.8%	16.0%
1Y - 3Y	31.8%	34.1%
3Y - 5Y	20.6%	12.7%
5Y -10Y	13.7%	6.4%
10Y -20Y	7.6%	3.1%
ADMISSION BLOOD UREA READINGS		
20- 49 Mg.	46.5%	56.4%
50- 99 Mg.	41.0%	26.5%
100-199 Mg.	9.5%	13.7%
200-556 Mg.	3.0%	3.4%
RESIDUAL URINE		
Retention	50.0%	48.5%
Paradoxical Incontinence	11.5%	11.2%
0- 99 cc.	19.0%	19.4%
100-199 cc.	8.2%	10.5%
200-399 cc.	7.5%	8.2%
400 cc. up	4.0%	2.2%
URINARY TRACT INFECTION ON ADMISSION		
Yes	66.8%	64.0%
No	33.2%	36.0%

under forty-five years of age. In the main the symptoms of the cancer group coincided with those of the benign group, namely, the varied manifestations resulting from obstruction, infection and their remote effects. Fifteen of the former, however, had few or no urinary tract complaints and no significant residual urine. Suspicion of their prostates was first aroused because of sciatica, "lumbago" or the demonstration of unmistakable metastases to bone.

It has been perfectly clear from our review of the 134 records that rarely was there any feature of the early history of the men with prostatic cancer to suggest its presence. Even late in the disease only about one patient in ten had complaints that were not compatible with a diagnosis of benign obstruction. It follows that not only should the possibility of cancer be suspected in every man over forty with the symptoms of vesical blockage but also that the absence of such symptoms does not justify the inference that no cancer is present. The earlier average recognition of cancer will only be common when palpation of the gland is routinely included in the examinations of men at middle age and beyond, and this by fingers sensitive to slight changes in consistency.

The most expert urologist will be sorely tried to say whether a small plaque of induration in the prostate is carcinomatous or inflammatory. Careful comparisons over a few weeks may furnish the answer. A positive aspiration biopsy is final but a negative specimen is valueless unless there is certainty that it came from the nodule under suspicion. In case of continuing doubt, resort may wisely be had to surgery or radiotherapy or both while there is still some prospect of cure.

GOOD-RISK AND POOR-RISK GROUPS

In addition to the general average information shown in Table 4 for the whole series, divided only as the prostate was malignant or benign, it has been instructive to compare similar data for what may be called good-risk and poor-risk groups (Table 5). Classification as good risks has naturally been given to those patients having such minimal trouble that surgery was deferred pending unfavorable developments. With less accuracy we have included all whose condition, soon or late, warranted operation upon the prostate itself. The respective percentages are listed in the first and fourth columns of the table. For the poor-risk section we have used patients so harmed from the benign hypertrophy that nothing more than a cystostomy was permissible and all patients who died without having had any operation whatsoever. The two central columns of the table show the figures corresponding.

The table speaks for itself and little textual exposition is required. A perusal of the percentage figures under the indicated headings shows that, on the average, the men were older, the symptoms of

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TABLE 5

	Prostatectomy (247) Resection (200) Punch (34)	Cystostomy Only (79) (Benign Hyp.)	Died—No Operation (55)	Periodic Check Advised (34)
Age				
40-49	1.7%	0.0%	1.8%	2.9%
50-59	16.0%	3.8%	10.9%	11.7%
60-69	40.7%	29.1%	27.3%	56.0%
70-79	35.6%	41.8%	32.7%	17.6%
80-89	6.0%	25.3%	27.3%	11.8%
Duration of Symptoms				
8D -6M	17.3%	6.5%	11.3%	45.5%
6M-1Y	12.3%	7.9%	4.5%	15.2%
1Y -3Y	33.1%	24.6%	36.4%	24.3%
3Y -5Y	16.6%	36.3%	29.6%	6.0%
5Y -10Y	12.2%	16.8%	18.2%	6.0%
10Y -20Y	8.5%	7.9%	0.0%	3.0%
Residual Urine				
Retention	49.2%	64.6%	60.4%	5.9%
Paradoxical Incontinence	9.5%	19.0%	26.4%	0.0%
0- 99 cc.	17.7%	3.8%	1.9%	94.1%
100-199 cc.	11.0%	1.3%	5.6%	0.0%
200-399 cc.	8.7%	5.0%	5.7%	0.0%
400 cc. up	3.9%	6.3%	0.0%	0.0%
Admission Blood Urea Readings				
20- 49 Mg.	51.4%	21.8%	18.6%	78.6%
50- 99 Mg.	40.9%	50.0%	25.7%	21.4%
100-199 Mg.	6.8%	25.6%	30.0%	0.0%
200 Mg. up	.9%	2.6%	25.7%	0.0%
Urinary Tract Infection on Admission				
Yes	68.7%	68.8%	80.4%	44.1%
No	31.3%	31.2%	19.6%	55.9%

longer duration, the incidence of retention greater, the blood urea readings higher and infection more frequent for the poor than the good-risk section. Needless to say, many exceptions to the average expectation could be cited from the series and there is danger in fixing attention upon an average. Mainly for this reason, Table 5, as well as the preceding one, has been prepared in relatively full detail rather than condensed to a record of means or averages. One must not overlook the fact that the younger prostatic may be a poor risk and the older prostatic a good one and so on down the list. The net effect of all factors fixes the status of single cases in defiance of averages. This is illustrated, for example, in the small group for whom, tentatively, nothing more than a periodic check was advised. In spite of a few patients having had complete retention, in spite of some having had obstructive symptoms for many years, in spite of a rather high incidence of infection, we felt entirely safe in playing a waiting game because there was no evidence of renal or systemic damage, little residual urine and only slight vesical inconvenience.

No better occasion will arise in this paper to call particular attention to the group advised to have periodic checks. These 34 patients, 5 per cent of the series, were started, at least, upon an ideal programme. Our opportunity to see them came so early in the evolution of their benign obstruction that any operation would have represented meddlesome surgery. The potentialties of their condition were fully explained and they were instructed to return for observation every three or four months unless unfavorable symptoms indicated the need of inspection sooner. Few, unfortunately, have adhered to the schedule outlined.

Faithful cooperation of this type between patient and physician for any large number of prostatics would be an Utopian achievement. Yet surely the physician should be consulted for the first alteration in bladder habits. At the original and subsequent visits due records would be made of the patient's general condition, renal function, residual urine, blood pressure and any change in the prostate. Under this regimen it would be possible to advise an operation whenever the obstruction was proven to be progressive but before any renal damage had been sustained, and, therefore, with the best prospect of a happy outcome.

Catheterization of the Prostatic

The immediate reason for the admission of a fair number of the prostatics having complete retention has been the inability of the home physician to pass a catheter. A few patients had sustained rather serious damage, even to urethral rupture, as the result of unsuccessful efforts at catheterization. Urologists will agree upon the necessity of avoiding urethral trauma and testify to the part it may have in determining the fate of the debilitated old man.

We have found that ready catheterization is almost invariably possible if one has the proper instruments and follows a simple but necessary technique. It may be helpful to describe both briefly.

Morphine and atropine are given hypodermically and time allowed for the drugs to take effect. An ounce of 1:500 nupercaine solution is injected into the urethra and retained for fifteen minutes. The actual catheterization is done with a hollow-tipped soft rubber catheter, size 16 or 18, carried upon a semi-rigid wire stylet whose curve can be adapted to the case in hand. Both the urethra and the catheter are thoroughly lubricated with sterile olive oil or any of the surgical lubricants now available. The

moment any resistance is met in the deep urethra, the index finger of the left hand is inserted into the rectum and guides the tip of the catheter through the membranous urethra, into and through the prostatic urethra and so into the bladder. Manipulative gentleness and the utmost regard for asepsis are of course essential. Instrumentation is made much simpler in a hospital by having the patient upon a suitable table. No doubt catheterization at home would be easier with the patient upon the floor than in a low, wide and sagging bed.

The question is pertinent here as to whether the chronically over-distended bladder should be rapidly emptied. Many excellent urologists feel that the dangers of sudden and complete drainage have been greatly magnified. We cannot share in this view. Our experience indicates that in a small group of prostatics, there is seemingly a definite cause and effect relationship between the chronic over-distention and a marked elevation of blood pressure. The blood pressure may drop 70, 80, or even 100 mm. of mercury under conditions which allow complete and continuous drainage. When such a drop happens abruptly in the patient bordering upon or in a state of renal insufficiency, the secretion of urine may, as a consequence, decrease disastrously at the very moment when increased secretion is required if the patient is to survive. The development of uremia can thus be inadvertently invited and death follow in short order. If such a fall in blood pressure is going to occur, the risk for the patient is much less if the drop takes place slowly over a period of days. Opportunity is afforded during this time both for a more gradual adaptation of the kidneys to the altered state of affairs and for the patient to have the benefit of standardized supportive measures.

We do not possess the acumen to select from the patients with chronically over-distended bladders those for whom gradual emptying is essential. The safe procedure, therefore, has clearly been to decompress them all. We are convinced that each year a certain number of lives are saved by pursuing this policy.

RESULTS FOR PROSTATIC OPERATIONS

Prostatectomy, prostatic resection or punch prostatotomy was performed in 481, 63 per cent, of the whole series. With a few exceptions, the prostatectomies were done suprapubically, usually in two stages. Punch prostatotomy dates back to the earlier years of the period. Its field of application was the bar and contracture type of obstruction and a few carcinomata.

Resections were begun in the spring of 1932. The procedure was first used cautiously for the smaller glands. In 1934 resection was the operation of choice in 82 per cent of the cases. For the current year, I may add, the figure will be in the neighborhood of 95 per cent. This increasing usage has been forced upon us, rather against our will, because resection has proven the safest, simplest and the least expensive way to obtain satisfactory results for all except the very large prostates. We have arrived at this position in spite of first-hand knowledge that the procedure is tremendously more difficult technically than a suprapubic prostatectomy and that it carries its own peculiar dangers of disaster.

The resections for cancer have been done solely to protect the kidneys by establishing adequate bladder drainage through the urethra. The optional procedure is a suprapubic cystostomy. So far the cancer patients with obstruction have had much more comfort after a resection than after the placing of a suprapubic tube. There has been no positive evidence that the operation has stimulated the tumor to more rapid growth. Supplementary radiotherapy has been employed, of course, in appropriate situations.

TABLE 6
RESULTS OF PROSTATIC OPERATIONS

	EXCELLENT	SATISFACTORY	POOR	DIED
PUNCH† ------	52%	33%	15%	2.9%
Cancer (8)				
Benign (26)				
PROSTATECTOMY	83.7%	13.7%	2.6%	8.5%
Cancer (25)				
Benign (222)				
RESECTION* ---	75%	20%	5%	5%
Cancer (22)				
Benign (178)				

The grading of results for patients surviving operation must at the best be arbitrary. The rating excellent has been given wherever bladder function was essentially restored to normal. Where there were such single features as a residual of 30-50 cc., a heavy infection, a slight amount of incontinence, or an undue frequency, and yet the result was fundamentally a good one with promise of better function

†Two later prostatectomies and three permanent cystostomies.

*Multiple resections in twenty-two patients. Two later prostatectomies and three permanent cystostomies.

The first three columns are computed by using survivors as 100 per cent.

as time went on, we have classed the result as satisfactory. The results have been called poor for larger residuals, incontinence of urine, marked difficulty in voiding, persisting suprapubic fistula, distressing frequency of urination, and so on. The classification is based on the patient's condition at the time of discharge from the hospital or that ascertained at an early follow-up examination.

In deriving the mortality rate, all deaths in the hospital have been included no matter what the cause or circumstances of death. This practice leads to some statistical unfairness but any other custom is liable to lure one into the twilight zone of evasion.

NOTE: The percentage figures in Tables 4 and 5 are not absolutely correct except for age and race. Every history did not carry an entry for each of the other headings but the deficiencies were not sufficient to mar the essential accuracy of the tabulations.

DISCUSSION

DR. W. W. S. BUTLER, Roanoke: It has been my pleasure to read the paper by Drs. Neff and Kirby before it was presented today, and, on going over it carefully, a number of facts came out which you are not likely to get on the one presentation. You will be amply repaid if you will follow the same course and go over the paper in detail when you see it in print. It will not be my plan to attempt any additions, but rather to call attention to some of the features which have impressed me. The author has presented here in fifteen minutes a summary of ten years work in our leading State institution with an analysis of careful records in each case, seven hundred and sixty-one prostatics with discussion of deaths in 123, eighty-six of which had suffered irreparable danger before admission.

The statistical work alone represents a tremendous amount of labor as any of you will realize if you try to tabulate the symptoms in even a few of these old men. Trying it on twenty-eight carcinomas of the prostate during the past summer entertained me amply.

The present is a most opportune time for this report, because for the first six years of this ten-year period, Dr. Neff strongly advocated supra-pubic prostatectomy. He was gradually and as he says reluctantly brought towards the resection group. The word "reluctantly" is well chosen (as I know from having discussed this question with him) and I have been much interested to follow the change in his viewpoint. The upheaval in prostatic work which came in about the middle of this ten-year period followed by the deluge of papers on resection has now almost come to an even flow. Our Society is particularly fortunate to have it reviewed by an able and impartial observer supplied by ample material and clinical assistants.

The bird's-eye view as I crowd it into the five minutes allowed me is indicated on this chart:

A. Education through family physician as to dangers of delay, and guides which make "Periodic check" safe. Facts brought out in Tables 1, 2, and 3.

Table 1. Distribution of the 123 deaths. Outstanding fact is that 64 per cent not operated or in whom cystostomy alone was done were beyond hope on relief on admission.

Tables 2 and 3. Outline condition of this 64 per cent on admission according to age, duration of symptoms, blood urea and infection.

B. Comparison of carcinoma and benign types with influence of age, duration of symptoms, residual urine, blood urea and infection.

Table 4. Age about same. My impression in carcinoma average considerably older. Duration, onset more abrupt in carcinoma. For this reason the patient is usually less affected and period of preliminary treatment usually shorter. Amount residual, same. My observation less because less time for gradual distention. The occurrence of hemorrhages is not discussed.

C. Importance of practice in rectal examinations for early recognition of carcinoma of prostate. Ten per cent are sent in with correct diagnosis, and 75 per cent are recognized before operation.

Urethra straighter and shorter, brought out in air cystogram. Catheter grips as in a stricture. The 75 per cent means nearly all admitted in advanced stage of the disease.

D. Technique and dangers of catheterization. Heartily agree in use of stylet. Less trauma if properly applied, using hollow tip catheter and hand on catheter and not stylet.

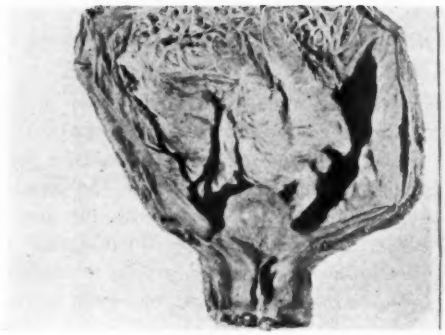
E. Groups according to operative risk.

Table 5. Condition before each of the procedures, operation cystostomy, no operation, or periodic check. When in doubt do a preliminary cystostomy.

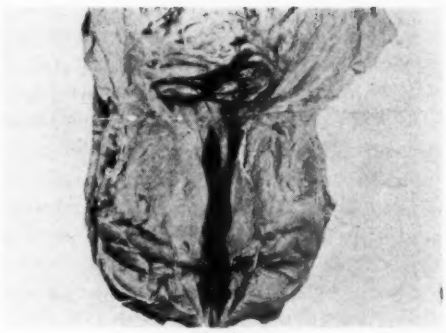
F. Comparison of prostatectomy (245 cases) and resection (200). Former 84 per cent excelent results with 8 per cent mortality compared with 75 per cent excellent results and 5 per cent mortality by resection. (Footnote: Multiple resections in 22.)

(Time allows here bare statement of this important paragraph. Footnote means a great deal. Intentional division into several periods greatly lessens shock and bleeding and technical difficulties, and so much easier on second resection.)

One other point I would like to bring out in connection with the education of these patients through the family physician. These two slides from Randall's actual photographs illustrate my point. In one, No. 1, the enlargement is not at all palpable per rectum, while in the other, No. 2, a much larger gland projects into the rectum produces a small residual with later acute retention. The point



No. 1.



No. 2.

is do not minimize the procedure because some other fellow got out in a few days; all are different. Leave choice of method and time of operation to the operator. A patient who comes in with too much assurance that he has only a minor procedure will invariably be disappointed. The 8 and 5 per cent mortality would be changed somewhat further if we were as ready to do a preliminary cystostomy before the resections.

I repeat that we are indebted to Drs. Neff and Kirby for an accurate account of work well done.

PROBLEMS IN THE DIAGNOSIS AND TREATMENT OF PERIPHERAL VASCULAR DISEASE.*

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Organic diseases of the arteries are indirectly responsible for more deaths than all other diseases combined. Changes in the coronary blood supply cause most of our sudden deaths. The cerebral accident is due to changes in the blood vessels and the disorders in function of the liver, kidneys, eyes and lungs are frequently due to damaged blood vessels. Impairment of function and nutrition in the extremities by deteriorated vessels not infrequently necessitates amputation. It is safe to assume that diseased vessels have an important place in all branches of medicine. In recent years the interest and enthusiasm in the study and treatment of these disorders has been tremendous.

The historical background of the peripheral vascular disorders has been thoroughly reviewed by Herrmann,[1] in 1933, and Reid,[2] in 1934. The purpose of this paper is an attempt to present these various conditions in such a manner that they will be easily differentiated, and also to give you our experience with one of the newer methods of treatment, the Paevex machine.

*Read before the sixty-seventh annual session of the Medical Society of Virginia, at Staunton, Va., October 13-15, 1936.

An elaborate classification would not be appropriate at this time, but knowledge of a working classification of the diseases of blood vessels in the extremities eliminates most of the difficulties of diagnosis and decisions pertaining to treatment. Diseases of the peripheral arteries are divisible into two large groups: (1) the so-called functional or vasomotor, and (2) the organic. In the so-called functional group there are two types—the cold sensitive, and the heat sensitive. The older classification of vasoconstriction and vasodilatation signifying primary changes in the vasomotor nerves must now be considered obsolete since Lewis and his associates[3] have proven that the structures involved are the arteries and arterioles of the extremities and not the sympathetic nerves. The cold sensitive types are better known as Raynaud's disease or acrocyanosis, the heat sensitive as erythromelalgia. In the organic group there are four main divisions: (1) the specific diseases of vessels, such as syphilis, tuberculosis and periarteritis nodosa, (2) simple thrombosis and embolism, (3) thrombo-angiitis obliterans (Buerger's disease), and (4) arteriosclerosis with or without occlusion.

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Raynaud's phenomenon affects young women in 95 per cent of instances. The first symptom of this condition usually appears in winter, or after emotional disturbances, and consists of changes in color, usually of all the fingers or toes. The involvement is symmetrical. These changes occur in a three-phase cycle. First, the digits take on a pale, dead white appearance and become numb; then, when warmed, they burn and tingle and turn red or often a purplish blue. The peripheral arteries always pulsate normally; gangrene, when present, is limited to the cutaneous surface. It is considered that this reaction is due to changes in the digital arteries in cold sensitive individuals.

Acrocyanosis produces changes in color of one or more digits that is constant during the attack, the digits being either cyanotic, reddened, or both. These changes are usually associated with diminution of sensation. Although the condition is troublesome and uncomfortable the part never becomes gangrenous. The prevailing belief is that the arterioles of the digits in cold sensitive individuals have been affected to produce this disease.

The diagnostic factors of major importance in both the multiple and single phase color change syndrome are that these conditions occur most frequently in young women, there is a color reaction of the affected part, and pulsations are always present.

Erythromelalgia was first described by Dr. Weir Mitchell in 1872; it is one of the rarest of the peripheral vascular disorders, occurring once in every 200 cases (Horton).[4] Males in the second and third decades of life are most frequently affected. Unlike Raynaud's disease, it involves the lower limbs more than the upper and usually only on one side. The disease consists essentially of a localized hyperemia of a foot or hand accompanied by burning pain, swelling, throbbing, heat and tenderness. Frequently pain ushers in the syndrome before the onset of visible hyperemia. Pulsations in the peripheral arteries are either normal or accentuated. The temperature of the involved extremity is always high. Intermittent claudication or gangrene never occurs. The diagnostic criteria of importance are: (1) burning pain in an extremity, (2) sharp increase of local heat in the affected parts, but redness, flushing or congestion may vary in degree, (3) production and aggravation of distress by exposure to heat and by exercise, and (4) relief by rest, cold and elevation. The etiology of erythromelalgia is still not known but recent publications[3] emphasize its relationship to inflammation and local heat sensitivity.

In the organic group of peripheral vascular disorders the specific diseases of the vessels are of minor importance because they are usually a part of the general systemic disease picture. The knowledge that syphilis affects the larger arteries, the aorta and the cerebral vessels is not new. That syphilis may also be the cause of a diffuse process in the vessels giving rise to gangrene has been suggested ever since 1839 when John Davy[5] reported two cases. In 1906 Druelle[6] reported 14 cases, Herrmann,[7] in 1933, reviewed the literature and added three cases. Although infrequent, this etiologic factor cannot be overlooked in our discussion. Tuberculosis of the arteries is rare; they may become involved through a direct extension from a nearby lesion or through infected emboli from a distance. The vessels of the brain, thoracic or abdominal viscera are usually attacked, but Baumler[8] reported one case of gangrene of an extremity due to tuberculosis.

Periarteritis nodosa is seldom diagnosed; first described by Kussmaul and Maier[9] in 1866, this condition has always baffled clinicians. Characterized by pain in the muscles and joints, fever, leukocytosis and at times a nephritic syndrome, with or without hypertension, the diagnosis can only be suspected by palpating the characteristic nodules on the arteries. There are no diagnostic laboratory findings and blood cultures are negative. Final diagnosis is made only on the autopsy tables and at times requires microscopic verification.

Simple thrombosis and arterial emboli are not observed very often, but it is important that they be recognized immediately. Thrombosis occurs more frequently among subjects who have arteriosclerotic disease than among those of any other group. Frequently it is difficult to distinguish between thrombosis and embolus, particularly in the popliteal arteries. Patients usually complain of sudden acute pain in the popliteal space, with coldness and numbness of the leg. There is rapid change in color varying from pallor to cyanosis, and pulsation cannot be felt in the arteries below the lesion. In elderly people, the absence of auricular fibrillation or endocarditis would suggest simple thrombosis rather than embolus. In the presence of a septicemia, with a cardiac murmur or arrhythmia, embolus should be

considered. Embolectomy in the arteriosclerotic group is never a very satisfactory procedure.

Thrombo-angiitis obliterans is a chronic disease of the arteries and veins, which is largely confined to the extremities, although recently Sprunt[10] has indicated that the lesions may be widely distributed throughout the body. This disease is very rare in females, only ten cases having been reported up to 1933 (Horton and Brown).[11] Men between the ages of twenty-five and fifty are commonly affected. Though the etiology of thrombo-angiitis obliterans is unknown, we are convinced that the excessive use of tobacco tends to aggravate the disease. Recently Wright and Moffat[12] proved conclusively that the smoking of tobacco caused a slowing of the blood flow and a drop in surface temperature of from five to fifteen degrees Fahrenheit. Whether this is of major consideration in Buerger's disease cannot be stated, but invariably the disease occurs in patients that smoke excessively.

The predominant presenting symptom of thrombo-angiitis obliterans is the pain of intermittent claudication. This symptom manifests itself following exercise as a cramp-like pain or feeling of distress in the upper or lower extremities, relieved by rest. Palpation of the peripheral arteries will show one or more occluded. When the limb is elevated, it immediately blanches and becomes almost cadaveric in appearance and cold to the touch; if retained in the dependent position, there is a bright red to purplish bluish color, beginning at the distal portion of the extremity and spreading upwards. Intermittent migratory phlebitis is common in 40 per cent of the cases.

To recapitulate, the diagnosis of Buerger's disease is incontestable if a young male who smokes excessively develops pain in one of his extremities, relieved by rest, and the affected extremity has poorly pulsating vessels exhibiting color reaction when elevated or depressed.

Arteriosclerosis, with or without occlusion, usually affects men over fifty-five years of age. Unless the patient has an acute occlusion the symptoms may develop so insidiously that neither the physician nor patient realizes the gravity of the situation until gangrene has taken place. Pulsations in peripheral vessels are diminished and may be absent Intermittent claudication is infrequent in the arteriosclerotic. Blanching on elevation and reddening on dependence is not common but may be present. Migratory phlebitis is rare in this group. There is very little tendency for remission in the arteriosclerotic. Demonstration of calcification in the arteries by means of X-ray studies is *prima facie* evidence of arteriosclerosis. It is obvious that differentiating between the arteriosclerotic and thrombo-angiitis obliterans may be quite difficult, because the symptoms in each group only vary in their degree of severity.

We suggest that an individual over fifty, suddenly or insidiously developing symptoms referable to his extremities, with poor pulsation and X-ray evidence of calcification in the vessels, probably is an arteriosclerotic.

TREATMENT

The milder types of functional peripheral vascular disorders usually do not require treatment. The patients should refrain from exposure to cold and are better if they spend the winter in a warm climate. In the more severe grades of obliterative vascular disease in which vasospasm is a prominent factor, excellent temporary results are being reported following the removal of the cervico-thoracic and lumbar sympathetic ganglia.

In the organic group of vascular disorders, prophylactic measures are of the utmost importance. These include avoidance of trauma, exposure to excessive cold, abstinence from the use of tobacco, the wearing of proper shoes and the proper handling of minor infections about the extremities. Increasing knowledge of the danger of operating on affected digits to which the blood supply is already diminished will, perhaps, accomplish greater changes in prognosis than any other factor. There are various methods in use for overcoming the deficiency of the peripheral circulation; all of these are directed toward the development of an adequate collateral circulation. Postural exercises when properly executed have definite value, but it should be emphasized that frequently the patient is advised to elevate the limb too long. The insistence upon elevation is harmful and may precipitate changes in circulation that the physician will not be able to control. Calorimetric studies by Reid[2] in Fig. I reveal the changes that take place in skin temperatures when the limb is in an elevated or dependent position.

Radiant heat, contrast baths and intravenous sodium citrate have been accepted as therapeutic aids. Brown[13] considered injections of typhoid vaccine

one of the best means for the relief of pain and increasing peripheral circulation. Roth[14] relieved intermittent claudication by intramuscular injections of pancreatic tissue extract in 3 c.c. doses. Newell and Allen[15] increased skin surface temperatures by oral administration of theobromine with sodiosalicylate and advocated its use in treating obliterative vascular diseases. Starr[16] suggested acetyl-beta-methyl-choline subcutaneously for increasing peripheral blood flow and reported pain relief in several cases of thrombo-angiitis obliterans. Goldsmith[17] obtained similar results by the oral administration of this drug in one gram doses.

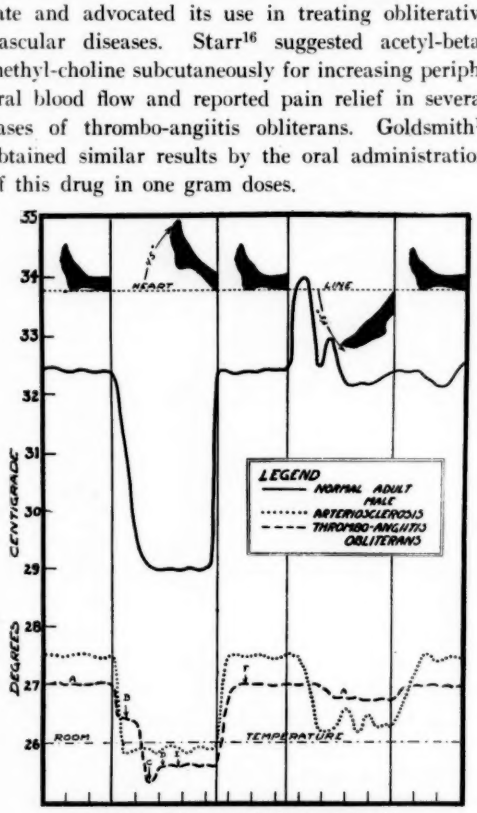

Fig. I.—Effect of position of extremity upon calorimetric studies. Graphs represent average skin temperature of all toes when foot, as illustrated, is placed in different positions with respect to level of heart. These studies were made at room temperature in order more nearly to approximate normal conditions. In all three types of peripheral vessels temperature falls with elevation of foot. In case with normal blood vessels there is a sharp transitory rise of temperature for about thirty minutes when foot is depressed and then there is a gradual return to normal; in cases with obliterative vascular disease there is no rise but a gradual fall of the surface temperature. In the case of thrombo-angiitis obliterans letters are used to denote patient's subjective sensations: A—no pain; B—pain beginning in fourth toe; C—pain spreading and becoming worse; D—pain severe; E—excruciating pain in foot; F—pain ceased.

The use of suction in an attempt to increase circulation to the extremities is not a new therapeutic method. The physiological effect of diminished atmospheric pressure upon the body or extremity and the marked increase in arterial circulation which could be brought about in this way was described over one hundred years ago by Sir James Murray.[18] In 1835 Clanny,[19] of Sunderland, England, published a description of an apparatus which he had devised for removing the pressure of the atmosphere from the limbs. In 1887, however, negative and positive pressures were used alternately by Edgar Bluck[20] to modify the arterial circulation. The first record of its application in the treatment of peripheral arterial disease was published in 1917 by Sinkowitz and Gottlieb.[21] They treated four cases of thrombo-angiitis obliterans with the Bier suction apparatus with good results. In 1931, Braeucker[22] treated nineteen cases of Raynaud's disease, utilizing the same principles with some success. In 1932, Herrmann[1] designed and built an apparatus which would alternately bring about the rhythmic alternation of the environmental pressure of an extremity from any desired amount of negative pressure to any desired amount of positive pressure, and at any selected rate of alternation. As this apparatus was essentially producing passive exercise of the vascular system, he called the method of treatment Paevex, meaning passive vascular exercise. Through the courtesy of the hospital division of the Medical College of Virginia and the physicians in and about Richmond, we have been able to follow ten cases of peripheral vascular disease with the Paevex machine, in the past several months.

Before inauguration of treatment, a complete physical examination and history were obtained from each patient. The color of the skin on dependence and elevation, presence of any surface lesions and degree of pulsation in peripheral vessels, were considered of major importance. Skin surface temperatures were recorded by placing patients in an air cooled room, in which the temperature and humidity could be controlled. The degree of vasodilatation in vessels of affected extremities was determined by immersing both arms of the patient in water, heated to 45° C. for thirty minutes, and then repeating the temperature readings. Alternate suction and pressure was then started, negative pressures of 80 and positive pressures of 20 in fifteen second cycles, ten second negative and five second positive, in two to three-hour periods, constituting one treatment.

The cases under observation were all in the organic group of peripheral vascular disorders. Four were thrombo-angiitis obliterans without gangrene. Four were arteriosclerotic without gangrene. Two were diabetics with associated arteriosclerotic changes

in the peripheral vessels. Pain was the prominent symptom in each case, ranging from discomfort on exercise to constant pain even at rest.

Our criteria of improvement after treatment were based upon: the relief of subjective symptoms, objective color changes, and elevation of the surface temperature.

All of the patients stated that they were temporarily relieved of pain. The interesting point was that this relief was most apparent while the affected extremity was in the apparatus. Permanent relief was not obtained, discomfort returning from twelve to twenty-four hours after treatment; but the pain that recurred was less severe than before treatment. In the treatment chamber the limb felt warm and appeared pink or bright red. The color was retained in the limb for several hours.

Eight of the cases had definite rises in surface temperature, varying from 1° to 5° C. after 25 hours of treatment. It had been predicted, prior to the treatment, that the other two cases would not respond, due to their complete inability to produce any vasodilatation in peripheral structures.

The following are illustrative abstracts:

Patient I.—Mr. D. T. W., a white male, fifty-four years old, had noticed some tingling and numbness in the calves of his legs for two years. Six weeks before admission, he developed severe cramp-like pains in his right leg, following exercise. Rapidly becoming worse, he finally was bedridden. Examination revealed generalized arteriosclerosis, with a blood pressure of 190/100, cardiac hypertrophy with occasional extrasystoles. Both lower extremities were cold. The right leg developed blanching on elevation and reddening on dependence. The skin surface was unbroken. No pulsations could be felt in either popliteal, posterior tibial, or dorsal pedis arteries.

The diagnosis was essential hypertension and generalized arteriosclerosis with occlusions of popliteals, posterior tibials and dorsal pedis arteries in both extremities.

Prior to treatment, the patient required morphine every night to relieve his pain. After the first treatment, the pain was less severe and it was possible to discontinue the opiate. The patient continued to improve and following 150 hours of treatment over a period of two months, was allowed to return to his work. Figure II demonstrates the surface temperature changes before and after treatment.

FIGURE II.—PATIENT D.T.W.

Date	Rm. Temp.	Surface Temperature				
			Before vasodilatation		After vasodilatation. Immersing arms in water at 45 deg. C. for 30 min.	
			Right	Left	Right	Left
7-13-36	23.5 deg. C.	Great Toe	25 deg. C.	26 deg. C.	28 deg. C.	28 deg. C.
		Second	25	26.5	29	29
		Fourth	25.5	26.5	29	29.5
			After 25 hours—Paevex Treatment			
			Right		Left	
7-27-36	23.5 deg. C.	Great Toe	28 deg. C.		28 deg. C.	
		Second	29		29.5	
		Fourth	29.5		29.5	
			After 100 hours—Paevex Treatment			
			Right		Left	
8-24-36	23.5 deg. C.	Great Toe	29 deg. C.		30 deg. C.	
		Second	29.5		30	
		Fourth	30		30.5	

Patient II.—Mr. J. S. J., a white male, fifty-seven years old, presented a very interesting problem in diagnosis. In 1920, at the age of forty-one, he was incapacitated for one year on account of severe intermittent claudication in the left leg. At the time he was smoking two packages of cigarettes daily. The discomfort gradually subsided and, other than having occasional twinges of pain, he was symptom free. In September, 1935, the claudication returned in his left leg and with such severity that the patient could walk only one block. Four months later, he began complaining of pain in his right leg.

Examination revealed retinal arteriosclerosis with

FIGURE III.—PATIENT J.S.J.

Date	Rm. Temp.	Surface Temp.				
		Before vasodilatation			After vasodilatation. Immersing both arms in water at 45 deg. C. for 30 min.	
			Right	Left	Right	Left
8-28-36	23.5 deg. C.	Great Toe	26.5 deg. C.	25 deg. C.	29 deg. C.	28 deg. C.
		Second	26	26	29.5	28.5
		Fourth	26.5	26	29.5	28.5
			After 25 hours—Paevex Treatment			
			Right		Left	
9-10-36	23.5 deg. C.	Great Toe	29 deg. C.		29 deg. C.	
		Second	29		28.5	
		Fourth	29		28	
			After 50 hours—Paevex Treatment			
			Right		Left	
9-26-36	23.5 deg. C.	Great Toe	29.5 deg. C.		29 deg. C.	
		Second	29		29	
		Fourth	29		29	

a blood pressure of 140/80. The heart was not enlarged. Moderate blanching on elevation and reddening on dependence was present in both lower extremities. Minimal pulsations could be felt in the right popliteal and posterior tibial arteries. There were no pulsations in the left popliteal, dorsal pedis, or posterior tibial arteries. X-ray studies revealed calcifications in the vessels of both lower extremities.

The diagnosis was thrombo-angiitis obliterans with superimposed generalized arteriosclerosis and arterial occlusions of the left popliteal, posterior tibial, and dorsal pedis and the right dorsal pedis vessels.

The patient received fifty hours of treatment. He is able to walk several blocks, at times complaining of numbness in the legs, but no pain. Figure III demonstrates the surface temperature changes before and after treatment.

Patient III.—Mr. J. W., a white male, thirty-

FIGURE IV.—PATIENT J.W.

Date	Rm. Temp.	Surface Temp.		
		Before vasodilatation		After vasodilatation. Immersing both arms in water at 45 deg. C. for 30 min.
			Right	Right
8-10-36	23.5 deg. C.	Great Toe	25.5 deg. C.	26 deg. C.
		Second	24.5	26
		Fourth	24	25
			After 25 hours—Paevex Treatment	
			Right	
8-26-36	23.5 deg. C.	Great Toe	25.5 deg. C.	
		Second	25	
		Fourth	24.5	
			After 50 hours—Paevex Treatment	
			Right	
9-10-36	23.5 deg. C.	Great Toe	25.5 deg. C.	
		Second	25	
		Fourth	25	

nine years old, was a very pathetic case. In 1929, at the age of thirty-two, the patient had his left leg amputated below the knee. The pathological diagnosis at that time was thrombo-angiitis obliterans. He was fairly comfortable up to 1934, when intermittent claudication began in his right leg. Several indolent ulcers developed about his foot, healing

slowly with bed rest. The patient began having rest pain requiring large doses of codein every night.

Examination revealed no retinal arteriosclerosis. The blood pressure was 100/65 in the right arm. The radial pulse could not be felt in the left arm. No surface lesions were evident in the right foot at this time. Marked blanching on elevation and reddening on dependence was noted in this extremity. There were no pulsations in the popliteal, posterior tibial or dorsal pedis arteries.

The diagnosis was thrombo-angiitis obliterans, with occlusion of the left radial, right popliteal, posterior tibial and dorsal pedis arteries.

After fifty hours of treatment, pain was still present, but the patient was comfortable while in the apparatus and did not require as much codein. Figure IV demonstrates surface temperature changes, before and after treatment.

CONCLUSIONS

1.—Peripheral vascular disorders are not difficult to diagnose if extremities are carefully examined and an adequate history has been obtained from the patient.

2.—From our limited experience with the Paevex apparatus, we feel that alternate suction and pressure is a most valuable adjunct in the treatment of certain peripheral vascular disorders. It should be emphasized that all conditions in which there are disturbances of blood flow to extremities are not amenable to this type of treatment, and therefore the cases must be carefully selected and adequately supervised while under observation.

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DISCUSSION

DR. WALTER B. MARTIN, Norfolk: I wish to disclaim any special knowledge of peripheral vascular disease, particularly of the Paevex treatment. Others in the room have much more knowledge of that than I have, and I shall not speak of that part of this paper.

I think it might be well to emphasize some of the less complicated methods of diagnosis, since the early recognition of these cases, before advanced changes have taken place, will render them much more amenable to treatment. The general practitioner who usually sees these cases first can by the application of certain simple methods often arrive at an early diagnosis.

Palpation of the peripheral vessels with a comparison of the relative force of the pulsation on the two sides is a simple procedure that anyone can carry out. It should be a routine procedure in people that may be suspected of having peripheral vascular diseases.

Observation of change of color in the extremities on change of position—blanching out when the extremity is elevated—furnishes useful information. Determination of difference in the blood pressure on the two sides is another measure that can easily be carried out, and will often give definite information as to the presence of vascular disease. Estimation of change in temperature of the affected part, following immersing the arms in water of about 113 degrees F. at a room temperature of 70 degrees, may give valuable information as to the efficiency or deficiency of the collateral circulation. Differences in the temperature of the extremities can be determined with relative ease. The use of histamine, injected intradermally, to determine the presence or absence of the so-called flare is not only a diagnostic procedure but is of value in determining the proper level of amputation.

I mention these factors not because Dr. Bloom did not bring them out but to emphasize the simpler procedure that can be carried out in a diagnostic way to determine the presence or absence of peripheral vascular disease.

I think we might consider also one or two factors in treatment. After all, what the patient is suffering from is anoxemia of the tissues supplied by certain blood vessels. This may result either from lack of oxygen carrying power in the blood or a decreased caliber of the arteries. In severe anemia, for example, tissue anoxemia may occur with comparatively normal blood flow. It seems quite obvious that this problem should be attacked from all angles—that not only should we attempt to increase the caliber of the blood vessels but we should attempt also to improve the oxygen carrying power of the blood. It is obvious that if there is an associated circulatory failure of cardiac origin, this should receive appropriate treatment.

Just one other thing I want to mention. That is the importance of considering anemia in these cases and treating the anemia, even though that anemia is not of very marked degree.

DR. EUGENE LOWENBERG, Norfolk: I wish to thank Dr. Porter and Dr. Bloom for their paper. They have presented their subject in a way to enlighten us all.

A few words in direct discussion of the paper. I note that Dr. Bloom uses the temperature reaction to indicate whether he gets results or not with Paevex therapy. I have never felt personally that this is a proper criterion. Arterial sclerosis may show no vasodilatation with spinal anesthesia and posterior tibial block and yet get good results from Paevex therapy. Dr. Bloom failed to mention the position of the patient's body. During the resting and sleeping hours, the head of the bed should be elevated so as to keep a good hyperemia in the legs. I think this is an important factor in the treatment of these cases.

The Paevex treatment should, on the other hand, be given with the leg elevated so that proper results are obtained during the positive phase. At first it may be necessary to give the treatment with the leg lower than the head and then, at subsequent treatments, the leg may be gradually raised. During the operation of the machine you should be able to notice the leg get a little red and then pale, that is hyperemic and ischemic.

I have used the Emerson machine obtained from Boston for three years and have found the results excellent.

Paevex therapy is of value in acute thrombosis. The patient may be kept in the apparatus for several days and they will survive this acute catastrophe. I recently had a man who had had one leg amputated for Buerger's disease. I saw him with extreme pain in the other leg and leg was quite ashen. There was no circulation due to acute thrombosis of the popliteal. He was put in the "leg pump" and kept there for 72 hours. After several more days of intermittent treatment the leg became pain free and fairly good circulation returned. This leg was certainly saved by no other treatment than the Paevex machine.

DR. BLOOM, closing the discussion on his part: I should like to thank Dr. Martin and Dr. Lowenberg for commenting on the paper.

The question of taking the blood pressure in a diseased extremity, if you are sure that it is affected, has come up in recent months. It is claimed that any increase in pressure is bad for that extremity and might produce a sudden thrombosis. Of course, this is highly theoretical. But if you are dealing with any occlusion, particularly serious occlusion, I think it might be better not to produce any more damage. This does seem rather farfetched, but it has been written about in the literature.

Dr. Lowenberg said something about keeping the head of the bed elevated. Recently there has been a lot of discussion about whether we should keep these patients with the limb in a dependent position or an elevated position for any length of time. Some patients complain of pain with the leg in a dependent position. So I suppose it depends upon the patient's comfort; if he states he is more comfortable in one position than another, let him take that position.

Herrmann and Reid reported ten cases in a recent paper with acute thrombosis or embolism, all of whom recovered without amputation after being given Paevex therapy. Of course, in the past many of these cases did recover without treatment, but that is a remarkable record and must be interpreted as good results produced from the use of the machine.

ROENTGEN THERAPY IN INFLAMMATORY CONDITIONS.*

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Since the early days of X-ray this form of therapy has been used in inflammatory lesions. As the indications for its use become better established and the method of application more carefully worked out the results become more satisfactory. It has now reached a stage where it unquestionably should be considered the method of choice in so far as local therapy is concerned when treating certain lesions of an inflammatory nature.

It is not the purpose of this discussion to cover fully as wide a field as the title might indicate. It will be based upon the four inflammatory conditions most frequently referred for roentgen-ray treatment in this hospital during the past four months. The records have been compared with those of other workers in this field as to methods used and results obtained.

In spite of the fact that reports show that good results are the rule rather than the exception when roentgen-ray treatment is properly used in certain inflammatory conditions, we still find that it is frequently not used in cases which would undoubtedly respond most satisfactorily. Among the reasons for this the following are probably important. Before the knowledge of the use of this form of therapy had reached its present stage of development, radiation therapy was used in a large number of cases where it was not indicated. This fact tended to make the general medical profession skeptical as to its value, a skepticism from which they have not entirely recovered. Another reason why physicians hesitate to order X-ray therapy for inflammatory conditions may be the feeling of aversion prevalent among the general public because they associate it with the treatment used in malignancy. They do not realize that the dose used will be only a very small fraction of that used in carcinoma.

A study of the literature indicates that in the early days of its use X-ray therapy was given more from an experimental standpoint than because of definite knowledge as to what changes take place after radiation. The results even from the very first were found worthwhile in a considerable number of cases. Gradually, as the effect is better understood, more intelligent use has made roentgen-ray therapy a very valuable addition to our therapeutic measures.

As to the rationale, a study of reports of work done to determine the effect of radiation in doses under consideration, shows that most workers agree that the beneficial changes produced are due largely to acceleration of the natural processes of defense which the tissues exert. It is not felt that any direct bactericidal effect is produced. A rapid and substantial increase in local blood supply is brought about. Leukocytes emigrate in larger numbers to an inflammatory area after radiation. Even the small doses used cause an early destruction of lymphocytes, it being felt that substances liberated by this destruction play a part in the localization of the inflammatory process. Local alkalinization is also felt to play a part in inhibiting the growth of the causative organisms.

It is not within the scope of this article to discuss in detail the methods of application, but a few general principles and trends in methods will be mentioned. If X-ray therapy is indicated most workers advise early treatment in spite of the fact that some of the most brilliant results are obtained when used at a later period. The patient should be given the advantage of early alleviation of symptoms and decreased probability of scarring which early application promises. In regard to the dose, fairly wide variation will be found among those using this treatment, but the majority use between 80r and 130r repeating after varying intervals when necessary. The present tendency is toward smaller initial doses. Since penetration depends upon wave length, we should vary the wave length to suit the individual case. As an example, for an early deep-seated carbuncle we frequently use the following factors: 140 Kv., 50 Cm. distance, 25 Ma., ¼ Cu., 1 Al filters for five minutes. This gives us a dose of 110r and an effective wave length of 0.20 Au (half value layer Cu. 0.470). This would represent the maximum in penetration used in the usual type of case under consideration. These factors are varied to suit the individual case. During the past year we have been using a slightly harder filtration for a certain type of inflammatory conditions and believe that results have been improved.

*Read before Staff Meeting, Chesapeake and Ohio Hospital, Clifton Forge, Va., January 13, 1937.

It must, of course, be remembered that radiation is only a part of the treatment in any case. It is often the major part in so far as local therapy is concerned, but the general condition of the patient must be considered. For example, it would not be advisable to treat cervical adenitis caused by badly infected tonsils without also giving proper consideration to the source of the infection. A diabetic with carbuncles should be under treatment for diabetes.

Our records for the past four months include ten carbuncles, nine cases of cervical adenitis, four of furunculosis, and two of cellulitis. Among those suffering with carbuncles, two have no record indicating the result, seven healed rapidly without the necessity of any surgical treatment except dressings, one healed slowly but satisfactorily.

The cases of cervical adenitis were treated only when the condition was causing considerable discomfort or giving evidence that a suppurative process would probably develop. Eight out of the nine cases recovered promptly without suppuration. In one the results were not completely satisfactory, probably due to unusually badly infected tonsils.

Three out of the four cases of furunculosis made a satisfactory recovery, the fourth did not return so that the record is incomplete. The two cases of cellulitis in this group made a rapid recovery.

This report covers only a small part of the field of usefulness of roentgen-ray therapy in inflammatory conditions. It is intended only as an illustration. Reports from other workers and our own records would add a much larger number of inflammatory conditions in which this form of therapy is of unquestionable value.

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RADIUM IN THE TREATMENT OF NON-MALIGNANT DISEASES OF THE UTERUS.*

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Encouraged by the many letters and expressions of commendation by my friends after the publication of a little treatise on "The Treatment of Cancer of the Cervix with Radium," I am emboldened to set forth in the same simple manner our experiences and results with this same agent in the non-malignant diseases of the uterus. In doing this, I shall endeavor to keep strictly to the clinical rather than the theoretical, to stick closely to the known, and to leave the unknown alone, and to avoid entirely the controversial.

In classification we follow the gross pathology as the basic factor, and when two or more conditions exist in the same patient, we use the predominating condition to designate it for our records. When we stray off among the finer points of microscopic structure, we are apt to lose ourselves, and become so ensnared in the meshes of this engaging network that we find it difficult to get back on safe practical ground again, where the large majority of our friends are waiting, possibly with some impatience for our return.

If we leave out cancer, the puerperal states, tumors of the ovary, and certain inflammatory conditions of the tubes and ovaries, there remains a well-defined group of intrinsic uterine diseases which give rise to abnormal uterine bleeding. "Too much, too often, too uncertainly, a little all the time," this is the chief complaint, the clinical picture. If this condition be allowed to go on over long periods of time, the blood forming mechanism grows tired, slows down and finally strikes. Then we have an anemia which one needs only a damp rag to demonstrate, for when the cosmetics come off the pale blanched tissues beneath plead eloquently for help. Abnor-

*Read at the sixty-seventh annual meeting of the Medical Society of Virginia in Staunton, October 13-15, 1936.

mal uterine bleeding in patients who have no infection, either active or smouldering pent up in the tubes, who have no puerperal remnants left behind, no cancer, women with intrinsic uterine pathological conditions, whose loss of blood must be stayed or stopped,—this is our practical problem, hers, yours, and mine.

All of these cases fall in, or can be placed in, one of the following classes: 1. Myopathic bleeding in young girls and spinsters, a clinical entity fortunately rare, with a pathology as vague as this ingenious title would suggest.

2. Endometritis. (a) Hypertrophic glandular. (b) Polypoid. Again we have a rather vague title, meaning an inflammation, when we really wish to designate two slightly varying forms of hyperplasia of the endometrium.

3. Fibroid uterus, a term that means just what is intended, an organ in which the fibrous tissue has gained ascendency over the muscular tissue.

4. Fibroid tumor of the uterus. This will embrace all the tumor masses consisting of muscular and fibrous tissue, which, singly or in numbers, form in any part of the uterus. That rarer group of adenomyomas are included in this group since their treatment would be the same.

5. The relaxed subinvoluted uterus, an organ usually of many conceptions and not a few deliveries, with inadequate periods of rest between times; large, indolent, relaxed, as though it hesitated between the normal and gravid states, and wept blood over its mistreatment and neglect.

Let's dispose of Number 1, *myopathic bleeding*, as it has little or no relation to the other groups. The literature contains descriptions of many such cases,—young girls who when their menses are inaugurated simply bleed on as though the mechanism had slipped a cog and knew no restraint. In former times, many of these, after curettement, packing, and all manner of medication had failed, were subjected to hysterectomy as a last desperate resort. In my own hands a typical case of this, in which the hemoglobin had gone down to 20 per cent, yielded to curettement and packing. Another, in which I was consulted recently, yielded to injections of pituitary extract. Such cases, though rare, seem ideal for glandular therapy, for they are in the beginning functional disorders, the structural changes coming later, after the bleeding and congestion have gone on for a long time.

When simple curettement and glandular therapy have failed, radium is definitely indicated. It is used in minimum doses, about 250 to 300 mg. hrs. Polak reports thirty-one such cases with but one requiring a second application of radium. Almost uniformly these young women returned to a regular menstrual life and several have married and borne children. I had one such case in a young spinster. After numerous curettings had failed, she was given 300 mg. hrs. of radium. Her periods stopped for a year, then recurred regularly and normally. She married and bore a child. When last seen, many years later, she was approaching an early menopause.

Number 2, *endometritis*. Clinically we see this condition anywhere from the thirties to the late forties. The bleeding here is caused by an abnormally thickened, highly vascular endometrium, sometimes presenting numerous new glands as a predominating picture, sometimes portraying a polyp-like structure. Microscopically differing, these two conditions are clinically one.

When such cases are curetted, large plaques of highly vascular mucosa may slide out around the curette, giving the impression of an extremely early pregnancy. Sometimes, the curette will find a hard, grating, unyielding base, and when the membrane has been removed there are revealed the co-existing fibroid changes in the uterine body beneath.

Woe to one who mistakes an acute or subacute suppurative condition for one of this simple hyperplastic type! Radium plays havoc in such cases. There will follow severe pain, fever, nausea, vomiting, and a tremendous increase in size of the uterus which can be felt as a tender mass rising above the symphysis. With rest and time this will usually subside in from one to three weeks, but one does not wish to encounter it a second time.

There are a number of things that should be borne in mind in deciding upon the treatment, beside the question of stopping the bleeding,—the age, the severity of the anemia, the desire for, and the physical, mental, moral and financial capacity for rearing children. In a very young woman where the anemia is not advanced, one might try curetting even though it may have to be repeated. Radium in such a case should be used in small dosage, hoping for a restoration of function or even a future pregnancy. In an older woman, one would use a dose sufficient to push her well into the permanent

menopause. Sometimes in young women with children, who are dependent upon their own efforts to earn a livelihood, we would be justified in using the larger initial dose and having done with it.

In the younger women, 400 to 600 mg. hrs. will usually suspend the menstrual function from eight to twelve months, and on its return it may become normal. In the older women, 1200 to 1800 mg. hrs. will usually stop the periods permanently. This comes as a great relief to an industrious housewife who has grown weary of semi-invalidism. The choice of treatment and the dosage is a question for one of experience and broad human qualities, for there are many, many factors beside the checking of bleeding that enter into it.

The relaxed subinvoluted uterus.—Here we have a large, boggy organ, usually lying in the culdesac from its own weight and flaccidity. Its os is open. It is pale or yellowish in color. It bleeds a little almost all the time. There is usually a thick vascular endometrium secondary to the stasis and congestion. Since these women are usually older and usually poor they are curetted and given the larger dose, 1200 to 1800 mg. hrs., to restore them to a normal life again as quickly as possible.

The fibroid uterus.—This is a definite clinical entity described many years ago, about which one hears very little. Its pathology consists of marked fibroid changes in the uterine wall at the expense of the muscular tissue. The uterus is large, hard and unyielding with its cavity usually wide and deep. We may have associated with it a polypoid or hypertrophic endometritis, but oftener the mucosa is more scant than in the normal. There may also be menorrhagia, profuse periods, prolonged periods, bleeding precipitated by undue exertion. It happens in the late thirties and early forties. Curettement alone gives little or no relief. Irradiation with radium, 1200 to 1800 mg. hrs., is usually the procedure of choice. It is the benign alternative to hysterectomy.

Fibroid tumors.—When irradiation was first used in this condition, it was freely predicted that it would supplant surgery. Then all tumors not reaching above the umbilicus were believed suitable for this method of treatment. Gradually experience has sifted the matter out, until today most conservative men differ but slightly in their advice. In young women, when the internal secretion can be preserved, or, even when the sentiment attached to it is a real factor in the decision, we operate. Tumors presenting many nodules had best be operated upon. Tumors accompanied by cystic or inflammatory disease of tube or ovary are surgical. Large tumors fall to the surgeon. The ideal growth for irradiation is a non-nodular globular growth, not larger than a grapefruit, in a woman of suitable age, say the late thirties or early forties. Here we get not only a symptomatic cure but a marked shrinkage of the growth as well. People with large tumors accompanied by heart diseases, high blood pressure to an extent that would lead an experienced man to call them hazardous, naturally fall into this group. It is invaluable as a temporary measure in the dangerously anemic cases, who have lost too much blood. By stopping this loss and by the use of transfusions, such inoperable cases are made safely operable. The submucous nodular cases which sometimes extrude their nodules into the uterine canal are better surgical than radium risks. There is a real risk in cases with subserous nodules, that one or more of these might actually drop off with the shrinkage of the main tumor mass, and the cutting down of its blood supply, thus leaving the nodule as a foreign body in the peritoneal cavity.

To sum up the question of fibroid tumors,—given a suitable tumor in a suitable woman of a suitable age, we may expect a safe symptomatic cure with a shrinkage in the growth of approximately one-third its size.

An analysis of 250 cases treated by radium shows the following distribution:

Group 1.—Myopathic bleeding in spinsters. One, age twenty-five, cessation of menses for one year, subsequent marriage with one normal child.

Group 2.—Endometritis. Total eighty-seven cases. Youngest twenty-two, oldest sixty-five, average age forty-three. Only six had two treatments.

Group 3.—Fibroid uterus. Total ninety-five cases. Youngest, twenty-three, oldest sixty-five, average age forty-four. Only seven had second treatment.

Group 4.—Fibroid tumors of uterus. Total cases fifty-five. Youngest thirty-two, oldest fifty-seven, average age forty-five. Seven required second treatment and one required a third treatment.

Group 5.—Relaxed subinvoluted uterus. Total cases twelve. Youngest thirty-four, oldest fifty-two, average forty-eight years. None required a second application.

We have not followed each of these cases year

by year as we have the cancers of the cervix, but a review of the histories with the subsequent reports in most of them has been most gratifying. The fact that only twenty-one of the two hundred and fifty had more than one treatment shows that the rather light dosage that we use is justified. Our position is that we had rather give just the right amount in two applications than too much in one application.

I am asked so many questions by patients as to results, immediate and remote, complications and sequelae to be looked for, post-operative and post-hospital management, that I tried to formulate a printed sheet such as we use in other operative cases on dismissal. But, after working diligently, I concluded that no single paper of reasonable length could be made to cover all such cases. The conditions and circumstances surrounding them seemed to demand individual instruction rather than the generalizations that are found quite sufficient in the ordinary surgical cases.

The first question and the one oftenest asked is, "Will radium bring on the 'change of life' and will it cause me to be terribly nervous?" I always answer this question by saying, "The use of radium, X-ray or surgery merely anticipates what nature has in store for you. You are paying a note before it is due. You will have all the symptoms that were to be yours, just as you would have had them anyway, only you take them sooner and are sooner rid of them."

Some women suffer severely with these symptoms of sweats, hot flushes, and steams, and some not at all. I would not recommend the ovarian hormones as a routine, but would reserve them for cases which actually develop symptoms. Here they may prove helpful. The leucorrhea which often follows will not prove worrisome if it is predicted. Simple douches will keep the patient comfortable until it subsides which will happen in a month or more.

When the dosage of radium has been purposely small or unexpectedly inadequate, the menstrual period usually returns in from nine months to a year. It is odd how closely it adheres to this almost definite time limit.

"How long must the patient be kept in bed after radium treatment?" is another question that is constantly asked, for it has both a personal and an economic bearing. I think that the minimum should be one week, and as much longer as is required by the exigencies of the individual case. Time is required for open dilated vessels to close and for congested tissues to shrink. Men often ask and expect too much of the miraculous of this useful agent. They condemn radium when it is their own judgment that is at fault. Give ample time and rest. Marked structural changes that must precede recovery cannot take place immediately, and injudicious activity may defeat a well planned and properly executed operative procedure.

"What may the patient expect as to stoppage and recurrence?" In the first place let us differentiate between flooding and bleeding. When the menstrual cycle or a semblance of it remains, we speak of the excessive flow as flooding,—a normal function, greatly augmented, but still persisting. In a bleeding uterus, the patient has passed the menopause or the mechanism governing the menstrual cycle has been lost. She bleeds at any time. If a patient is flooding we should choose a time immediately after the period has stopped, thus giving the longest possible interval before the next flooding spell is due. In a bleeding patient we give absolute rest in bed with hot alum douches until the flow is as nearly stopped as possible. At times we have to give it in the presence of active hemorrhage, putting packing in along with the radium to staunch the oozing, but fortunately such cases are rare.

It is easier to stop bleeding than flooding, for in the one we deal with a congested uterus that bleeds, while in the other we have this plus the ovario-uterine mechanism that must also be broken down to attain this end.

In answer to the question, "Will my periods stop?" my reply is, "Yes, but you may have one very free period and even two before this is accomplished."

"Will my bleeding stop?" "Yes, and the quieter you keep the quicker it will come about. Remember that this is a slow acting agent. Don't be discouraged if it keeps up a little for four or even six weeks. I have given you an adequate dose and if you give it your cooperation we are bound to get good results." In this connection I might add that the younger the patient the stronger is she linked with this mechanism which tends to persist and survive and revive. If we plan, for some good reason, to stop a woman's periods permanently, a relatively larger dose must be given to the younger woman. For the older woman close upon or actually in the stormy breakers of the menopause, a relatively

smaller dose will safely pilot her into that safe haven of quiet security, in that peaceful if less exciting harbor of the "changed life."

I have said very little about the use of X-ray in these cases. First, because as the title indicates, this is a paper on the treatment with radium. Many of them can just as easily be handled by X-rays. In the younger woman I feel that radium is less apt to affect the ovarian function since it is applied from within, and the whole uterine wall acts as a screen to the ovaries. Radium usually requires but one application and the treatment is over in a few days. The X-ray is spread out over a longer period of time with frequent visits to the operator. But most important of all, the radium patient takes a general anesthetic which allows a complete pelvic examination with the patient relaxed; and above all it includes a curettement for diagnostic purposes. Occasionally one picks up a cancer of the body of the uterus in this way, a condition still regarded by most men as strictly surgical. I believe there are few roentgenologists who would treat such a case with X-ray if this fact were known beforehand. In addition to the routine curettement, one has the opportunity of correcting many pelvic conditions. I have amputated the cervix, repaired it unilaterally and bilaterally. I have repaired the perineum and done operations for hemorrhoids. Were X-ray used in such cases there would still be the hospitalization and anaesthesia or else these needed operations would go undone.

The ideal arrangement for the proper treatment of all the conditions just described is to have all three agents, surgery, radium, and X-ray, readily available so that one may choose in an impartial unbiased way the proper method to suit the needs of each individual case.

In closing, I would like to say that radium is a powerful agent, and like all powerful agents it may, if misapplied, prove a very dangerous agent. It is neither a styptic nor a haemostatic, nor a universal remedy for bleeding at the menopause. It is a very potent agent in the management of certain well-defined pathologic conditions whose chief symptom is bleeding, and for these it should be used with careful discrimination.

At the risk of being tedious and seeming needlessly elementary, I have set forth most of the perplexing problems as they have presented themselves to us through the years, and to which I have found a satisfactory solution so far as I and my conscience are concerned. If this simple narrative of our difficulties and their solution should prove helpful to others, the time and patience consumed in its preparation will have been well spent indeed.

McGuire Clinic.

DISCUSSION

DR. A. P. JONES, Roanoke: Some years ago when the Surgical Section of the Southern Medical Association was holding its meeting, I was impressed by a sign in large letters beside the Chairman's desk: "Please omit the *Me-too* discussions." If I adhere to that admonition I will have nothing to say because I am fully in accord with Dr. Peple's conception of the place of radium in the treatment of non-malignant diseases of the uterus. I know of no place in which that rare and essential quality, surgical judgment, is more needed than in the care of these patients.

To take up the different types of condition as he outlined them:—the young girl who bleeds excessively in spite of curettement, packing, etc.—and in that case we are still looking in vain to our friends, the endocrinologists, for a solution of the problem—it is much better to give too little than too much because you can try again. In several such cases I have seen excellent results.

I recall one girl of eighteen who had bled continuously since the onset of her menses. Her hemoglobin was reduced to 28 per cent. Something had to be done. Her periods were stopped for something like nine months by the use of radium, and when they returned were perfectly normal and have remained normal.

The age factor is of great importance. In excessive bleeding at or near the age of the menopause, radium acts like a charm and leaves nothing to be desired, provided we can rule out an underlying malignancy. When we consider fibroid tumors the problem is more perplexing. In a woman below thirty-five years of age, paradoxical though it may sound, hysterectomy is more conservative than the use of radium because the ovaries can be saved. I, therefore, prefer to reserve radium in the treatment of fibroids for those cases in which there is some constitutional disease which would render hysterectomy unusually dangerous.

It seems to me that in the past eight or ten years the contraindications to the use of radium tend to increase rather than to decrease. I recall one patient with a small uterus with excessive bleeding in which the diagnosis of submucous fibroid had been made. Radium was applied by an excellent gynecologist. I saw her one month later with a profuse purulent discharge from the uterus, high temperature and high leucocyte count. A hysterectomy seemed the only answer to the problem. When we came to examine the uterus a small necrotic submucous fibroid was found. A radium tube had been placed alongside the pedicle and destroyed the blood supply, so that necrosis was inevitable.

Another experience: Radium was applied in the case of a woman forty-five years of age, who was bleeding excessively. Currettement ruled out any intra-uterine le-

sion, and there was no great enlargement of the uterus and it seemed just the type in which radium works so beautifully. Unfortunately, we lighted up an unsuspected tubal infection—another complication which must always be borne in mind.

In conclusion, I wish to thank Dr. Peple for the charmingly presented paper. No one expresses himself better than he does.

DR. J. BOLLING JONES, Petersburg: It will be my pleasure to read the main body of this paper another time; I have never heard a paper that I felt was more valuable. I think it is generally impressed upon medical men and surgeons that when we consider radium we connect it naturally with cancer. That is what we see every day, articles on the treatment of cancer with radium. I cannot recall seeing a paper devoted entirely to the use of radium in non-malignant disease of the pelvis of women. Consequently, I think Dr. Peple's paper is extremely valuable to us.

In looking over my own work, I had a statistician go back as long as five years—we have been using radium for fifteen years—and I found in the past five years the application of radium 124 times. In that number of times, there were sixty-one patients for non-malignant disease; the other applications, making fifty-nine, were for cancer of the uterus. I would say the applications of radium in the cancer cases would certainly be two or three treatments, which would make in the last five years the use of radium in the non-malignant uterine cases in the proportion of two to one. Yet, you will not see anything like the discussion of it that we do in regard to cancer.

I want to read what Dr. Peple left out. To me, it is especially wonderful to women at both ends of their menstrual life, especially the case of the young girl, who afterwards married and bore a child.

In my practice we have used radium on two young women; it was used after the use of all the other remedies had failed. We postponed the menstrual flow for eight or nine months, and it was followed by marriage and pregnancy.

The next and more spectacular use is at the other end of the menstrual life, in the forties, when the women are on the borderline of the menopause anyway and the cases do not require as much thought as in the younger subjects.

As to the use of radium in fibroids, I do not use it as much as I used to do, because I wish to preserve the ovarian function. Most of these women have bled until they are bad surgical risks. Give them 112 milligram hours.

One of the most beautiful things about radium, as compared with X-ray, is that whereas, in these sixty-one cases that I have run over in my own work in the last five years, there has been only one application of radium in the series, the element accomplished what it was used for, and put the patient in such shape that ultimate surgery could be done with safety.

DR. WRIGHT CLARKSON, Petersburg: Dr. Peple's paper is on a most important subject and I enjoyed it immensely. My remarks will not be made with any intention of criticizing the good work of Dr. Peple, but rather with the desire of calling attention to certain recent advances in radiotherapy.

The proper treatment of either benign or malignant diseases of the uterus is absolutely dependent upon a very close cooperation between the surgeon, the pathologist and the radiologist, for, as Dr. Peple has said, many of these conditions should be treated by irradiation, and marvelous improvements are being developed in radiotherapy.

The physical properties and the biological effects of gamma rays of radium and of very short wave length roentgen rays are identical, and roentgen irradiation in these conditions offers many advantages over the use of radium.

One of the most important things in treating these conditions is to do the patient no harm. At the Curie Institute in Paris, Dr. Coutard emphasizes the importance of giving external (roentgen) irradiation as the *first act*. Many cases of cancer of the uterus occur in women well under the age of thirty and we should remember that cancer rarely kills by direct extension but by metastases to deep-seated vital areas.

To differentiate the malignant from the benign conditions of the uterus, with any degree of certainty, is absolutely impossible until some of the diseased tissue has been secured and examined under the microscope. We know that the dilatation and curettage of a malignant uterus for the purpose of securing tissue, or for the purpose of implanting radium therein, frequently, if not always, squeezes cancer cells into the circulation. We also know that this danger may be avoided by giving roentgen irradiation prior to the diagnostic curettage, because the external irradiation will so devitalize the cancer cells that they will not live if carried to a new area.

If, after the curettage, the condition proves to be benign, no other irradiation will be necessary. If the disease is found to be malignant, further external irradiation, properly administered, will be far more efficacious than the application of radium. However, it is usually wise to follow the roentgen irradiation by radium therapy in treating inoperable malignancies of the body of the uterus, for the combination gives better results than the use of roentgen irradiation alone.

Another distinct advantage of roentgen irradiation over radium therapy in treating benign or malignant conditions of the uterus is the fact that roentgen therapy can be used in cases complicated by infection. It is not necessary to traumatize the uterus nor to interfere with the discharge of infected material. Roentgen ray greatly benefits infections and it may be administered without the necessity of hospitalizing the patient.

DR. J. L. RAWLS, Norfolk: There is one remark of Dr. Peple's that I want to emphasize by giving you the history of two cases I have seen within the last ninety days. He said if you could exclude tubal infection and cancer, radium is the choice treatment. These two cases demonstrate that question.

One of these women I have had under observation since 1917, for excessive uterine bleeding. When she first

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came to me she was a single girl in her early twenties. She was curetted at that time. She afterwards married and had an ectopic pregnancy. At the operation it was found that she had a small fibroid in the fundus of the uterus which was not disturbed. She made an uneventful recovery from the operation but continued to have excessive uterine bleeding; and, in 1923, she was given 500 mgm. hours of radiation. I have seen her off and on since that time and she has always given the story of excessive and prolonged menstrual bleeding. Since 1930, she has been bleeding quite freely and has come in from time to time for a check up. These examinations showed that the fibroid was slowly enlarging. She came in in August, 1936, and stated that she was bleeding continuously and that she had made up her mind to submit to a hysterectomy which had been advised for some time. She is now in the forties and has been forced to wear a menstrual dressing every day for six months. At the operation a fibroid was found in the fundus of the uterus and just below it a second tumor which had begun to invade the broad ligament. This second tumor proved to be an adeno-carcinoma.

The other woman came to the hospital at the age of fifty. I had seen her two years ago with a forty-eight-hour-old ruptured appendix. The appendix was removed and drainage was instituted. She was quite heavy and the abdominal wound became infected and she developed a ventral hernia. Several small fibroids were felt in the uterus at the time of the operation, and she told me that she had been advised to have deep X-ray therapy for excessive menstrual bleeding. She came in a few days ago and told me that she was now bleeding continuously and would like to have radiation to stop it. She preferred radium. I suggested that she have a hysterectomy done and her ventral hernia repaired which she refused. When we introduced a sound, preliminary to introducing the radium capsule, some granular looking material oozed out which did not resemble hyperplastic endometrium. This sectioned adeno-carcinoma.

We had planned to give her twenty-four hundred mgm. hours of radiation, but we ran it up to thirty-six hundred. We now contemplate doing a hysterectomy and repairing her hernia.

Both of these cases have been under observation for a number of years for excessive and prolonged menstrual bleeding, but the significant thing is that now they have lost the periodicity of their bleeding. So when a patient comes in with such a history as theirs we must be careful to exclude all possibility of malignancy before using just a sufficient amount of radiation, either X-ray or radium, to cure a benign lesion.

HEMIHYPERTROPHY,
A Case, Probably Acquired, Associated with Pituitary Tumor.*

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Congenital hemihypertrophy is rare, there being only eighty-four cases[1] reported of complete hemihypertrophy, but acquired hemihypertrophy has not been described. Many theories[2] have been offered to explain the etiology of the congenital type. The outstanding ones are: (1) glandular dysfunction, particularly hyperpituitarism; (2) increased blood supply to one side of the body due to some vasomotor abnormality; (3) an abnormality of the nerve supply,[3] the theory of which is substantiated in part, by several reported cases of neurofibromatosis with enlargement of an extremity; (4) an embryologic[4] developmental abnormality; (5) more recently a deviation from the normal process of twinning.[5] The last two are obviously not applicable to the acquired type.

The present case is being reported because it is believed to be the first description of what seems to be acquired hemihypertrophy. An associated pituitary tumor is the potential, but not the proven cause.

CASE REPORT

This forty-eight year old white man came into the clinic on January 18, 1935, complaining of abnormal growth of the right half of the body, right sided numbness and weakness. He said that his trouble began in 1930 but had only been noticeable to others for the past year. Until the present illness began, he had always been well and active except for a ruptured appendix in 1918. Since that time he has had numbness in his right lower quadrant, and thinks that the operation had something to do with his present condition. In 1929 he began having attacks of numbness and weakness in the whole right side of his body. The condition seemed to progress and later on in the year he occasionally had severe "catching-like" pains in his right hip.

*From the Department of Neurology and Psychiatry, University of Virginia Hospital, University, Virginia.
Read at the sixty-seventh annual meeting of the Medical Society of Virginia in Staunton, October 13-15, 1936.

During the Spring of 1930 he first noticed that his right leg was slightly longer than the left, but this was not noticeable in his gait until one year ago. In 1932 he went to a government hospital because of pain in the right arm, and a diagnosis of neuritis was made. Since that time he has had a tremor of the right hand accentuated by work and fatigue. He has not been able to work regularly because of weakness, numbness, and tremor of the right hand. During the past year the progression of the above symptoms has been quite rapid and the increase in the size of the right half of his body has been quite noticeable to himself and to others. His gait has become more and more awkward due to lengthening of his right leg. He has also noticed that his right shoe pinches his foot. At present he can hardly do his daily chores because of weakness of the entire right side.

This history was accepted with considerable hesitancy, but it was corroborated from several sources. First, several reliable citizens from the patient's community say that his present condition has recently developed. Second, his physical examination done at the time of his enlistment into the Army in 1917 did not reveal any developmental abnormalities. The following statement is quoted from his enlistment record: "He was found physically qualified for military service with the following defects noted; three missing teeth." Third, a physician of this city examined him in 1930 and no note of asymmetry was made in his office record. He also saw the patient while in the hospital and stated that he was quite certain that he did not overlook such an asymmetry of extremities. Fourth, he was examined at the Portsmouth Naval Hospital in June, 1932, and a diagnosis of neuritis of the right arm was made. The following quotation from a report of this examination indicates that the extremities were carefully examined: "Biceps and triceps reflexes of right arm absent—circumference of right biceps three-fourth-inch less than left—grip of right hand very much lessened." From the above data we can conclude that the extremities did not show enough asymmetry to be detected by a physical examination as late as 1932.

On general inspection the patient appeared to be a healthy, large man (height 72 inches, weight 170 lbs.) with prominent rough features and obvious asymmetry of the two sides of the body. Except for asymmetry there were no outstanding physical abnormalities. The right side of the face looks larger than the left, but this is more apparent than real because of the deviation of the nose to the left. However, the greatest distance between the supra-orbital and infra-orbital ridges was 0.5 cm. greater on the right, which was the only facial measurement that could be made with any degree of accuracy. The right arm was 2.1 cm. longer than the left and the right leg was 3.5 cm. longer than the left. (See Table No. 1). The circumferences of the

TABLE No. 1
BODY MEASUREMENTS

	Right- cm.	Left- cm.
Greatest distance between infra-orbital and supra-orbital ridges	4.0	3.5
Length of clavicle	25.0	24.0
Length of arm in adduction from acromion process to internal epicondyle	38.5	37.5
Length of arm from internal epicondyle to styloid process of ulna	31.8	30.5
Length of middle finger from metacarpophalangeal joint to end of finger	13.2	12.2
Length of arm from acromion process to end of middle finger	87.5	85.4
Length of leg from anterior superior iliac spine to internal condyle of femur	52.2	51.0
Length of leg from internal condyle of femur to internal malleolus	48.5	46.8
Length of leg from anterior superior iliac spine to internal malleolus	101.0	97.5
Length of foot from tip to heel to tip of great toe	27.5	26.3
Circumference of arm at insertion of deltoid	25.3	27.0
Circumference of arm midway between internal epicondyle and styloid of ulna	24.3	24.3
Circumference of arm at wrist	18.0	17.4
Circumference of hand at metacarpophalangeal joints	22.9	21.8
Circumference of leg 12 cm. above patella	45.0	46.5
Circumference of leg 18 cm. below patella	37.0	38.3
Circumference of foot at center of longitudinal arch	28.8	28.8

right arm and leg in muscular portions were less than on the left, probably residual effects of the trouble the patient had with his right arm and leg while in the Naval Hospital in 1932. His gait was quite awkward and his pelvis tilted, producing scoliosis to the right. The facial features were slightly acromegalic and the fingers of each hand spatulated. Several fibromata mollusca were noticed over his body. There was a "cafe au lait" spot four centimeters in diameter over the lateral aspect of the left hip. Skin marking seems to be characteristic of congenital hemihypertrophy.[2]

Neurological examination revealed a coarse tremor and weakness of the right hand. Subjectively, the right leg was also weak but no objective weakness could be demonstrated. There was some diminution of tactile, temperature, position, and vibratory senses over the right side of the body with a complete loss of pain which seemed to be an hysterical phenomenon. Visual fields were normal. His intelligence quotient was 70 per cent by the Simon-Binet test.

Routine blood and urine studies were normal. Wassermann was negative. The glucose tolerance test was within normal limits. The B.M.R. was minus six. Roentgenograms of the skull were interpreted as follows: "The sella turcica presents a very peculiar appearance in that the posterior clinoids are bent back with a partial erosion of the posterior clinoid on the left. The anterior clinoid on the left is slightly eroded. Conclusion: The findings noted in the sella are consistent with an intrasellar tumor."

TABLE No. 2
X-RAY MEASUREMENTS

	Right- cm.	Left- cm.
Index finger—total length of phalanges	9.8	9.5
Middle finger—total length of phalanges	11.1	10.5
Ring finger—total length of phalanges	10.9	10.3
First metatarsal	8.3	8.1
Fifth metatarsal	9.2	8.9
First phalanx of great toe	3.9	3.8
Crest of ilium to upper border of acetabulum	16.0	15.6
Transverse diameter of ilium	15.0	14.0

X-rays of the right humerus, right lower arm, hands, pelvis, right femur, right lower leg and feet were taken, but no abnormalities were noted, other than differences in length. The X-ray films were too short to permit comparative measurements of the long bones. Table No. 2, however shows the comparative measurements of the shorter bones.

Deep X-ray therapy over the pituitary was recommended but the patient elected to go home and has not returned.

COMMENT

A case of complete hemihypertrophy is presented with evidence that it is acquired and not congenital. The only evidence of possible etiological significance was a pituitary tumor, demonstrated by X-ray, with suggestive acromegalic changes more marked on the right. No effort is made to explain the possible cause and effect.

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Photograph of patient. Left heel is elevated 2 cm. Note that right knee is above left.

DISCUSSION

DR. HUGH H. TROUT, Roanoke: Someone has very well said, "Beware of the man with only one case." When a man gets up to discuss the paper of another man who has reported only one case, and he has never had a case, you know what conclusions to draw. The only reason I have for discussing this paper is that Dr. Strickler is a former house officer of ours and has gotten in the habit of asking me to discuss his reports.

I think one of the worst tragedies that can happen to a man who has worked out a case as well as this one has been worked out is not to have the treatment carried out. It is very unfortunate that this patient did not return for his X-ray treatment. Had it been carried out, we should have learned something about unilateral growth, particularly as associated with tumor of the pituitary. Especially would this have been valuable at the present time, when we are so interested in tumors of different parts of the body, and especially their response to irradiation.

As many of you know, Dr. George W. Crile has recently returned from a hunting trip in Africa. His experiences are delightfully told by his wife in a book "Airways to an Africal Jungle Laboratory." In that Africal Jungle Laboratory members of the expedition dissected a great many animals and what they were particularly interested in was the relationship of the size and character of the pituitary with the size of the animal.

Since Dr. Strickler asked me to discuss his paper, I have had an opportunity to ask Dr. Crile if he had seen any unilateral hypertrophy in animals that could have been attributed to disturbance of the pituitary. He had not seen any. Mrs. Crile tells most entertainingly about Dr. Crile trying to locate the thyroid in the giraffe. He finally found it high up in the neck and close to the hyoid bone, far away from the sternum.

DR. DAVID C. WILSON, University of Virginia: This patient came back in the University Hospital in September, 1936. He was referred by the Social Service Department because of his behavior. Apparently, he had terrified his community. His appearance was so grotesque and his temper so fierce, especially when he was drinking, that every one was afraid of him. We really had him in the hospital to decide whether he should be committed or not.

At that time his right side was found to be even larger than on previous examination; his tremor was more marked; the visual fields showed a more marked defect. We found that while in the hospital his behavior was quite good. His basal metabolic rate was studied. X-rays taken at that time showed no further change in the sella. His blood sugar studies suggested an involvement of the pituitary.

Finally then, we have here a very valuable paper because of two facts; first, a description of hemihypertrophy which is acquired and, second, because this hemihypertrophy is apparently connected with a pituitary disorder.

DR. JAMES W. HUNTER, Norfolk: Some years ago, in conjunction with Dr. Magruder, of Norfolk, a study was undertaken by Dr. L. T. Royster, or, rather, I should say that Dr. Magruder and I did the work and Dr. Royster studied the cases. We kept records of 350 children and analyzed the pituitaries. We came to the conclusion, finally, that there was nothing very much in it, the same conclusion that had been reached by Dr. Moore, of the Mayo Clinic, some time before. It would be most interesting in this case, as there is a special roentgen pathology in pituitary tumors, which is not here present. I have seen a large number of pituitary tumors. These were referred to me by Dr. H. L. Myers, of Norfolk, and operated upon by Dr. Dandy, of Baltimore. It is usually found that the normal pituitary in the adult will measure from ten to twelve millimetres in length and, usually, about eight millimetres in depth, with an interclinoid space of about four millimetres.

Dr. Strickler did not give us, as I recall, the size of this sella. To look at it, one would come to the conclusion that this sella is a little small and that there has been a deposit of lime salts on the clinoid. The doctor also did not give us the field of vision.

I wish to say that I personally am not convinced.

The speaker would call attention to an article published by him in the VIRGINIA MEDICAL MONTHLY, January, 1922, "Adenoma of the Pituitary: Report of Five Cases."

DR. J. S. DEJARNETTE, Staunton: The pituitary feeds the whole body, doesn't it? For instance, if you take out one-half of the thyroid, the other half of the thyroid will take care of the whole body, will it not?

DR. STRICKLER: Yes, sir.

DR. DEJARNETTE: Then why do you think that injury to one-half of the pituitary will cause this enlargement of one-half of the body?

DR. STRICKLER: I do not think that.

DR. STRICKLER, closing the discussion: I thank everybody for the discussion. I agree with Dr. Hunter. I am not convinced myself so far as the X-ray is concerned. Of course, the man is still living and getting along very well after a year and a half, so far as I know. He has become a behavior problem, but that may have been due to his bonus. The skull plates show up very well in the stereoscope. That is, the erosion of the sella, if the technic is correct, shows up very well in the stereoscope. The sella does not look very large. I did not hear all of your discussion.

DR. HUNTER: You ought to have the eye-grounds, I think, Doctor.

DR. STRICKLER: Visual fields were normal and the eye-grounds were normal.

I do not know that it is of any help to report the case, but I thought I would report it and let everybody think what they wish.

DEFICIENCY DISEASE THE RESULT OF INTERFERENCE WITH ABSORPTION FROM THE GASTRO-INTESTINAL TRACT: CASE REPORTS.*

T. DEWEY DAVIS, M. D.,
Richmond. Va.

During the past twenty years remarkable progress has been made in the study of those diseases which result from a lack of some constituent in the diet or from improper utilization of material which has been ingested. The literature is replete with brilliant disclosures in the vitamin field and we have a number of well recognized syndromes which can with certainty be ascribed to insufficiency of one of these remarkable substances. The outstanding contributions of Minot and his co-workers have shown that certain organs, notably the liver, contain materials which bring about maturation of red cells and restoration of the normal blood count in pernicious anemia. Castle, delving still deeper into the problem, has demonstrated that in pernicious anemia and certain of the other macrocytic anemias a factor which he calls the X-factor is absent in the gastric secretions of these individuals. The lack of this factor interferes with the proper utilization of certain protein constituents of the normal diet and thus permits the development of the bone marrow difficulty in pernicious anemia. He calls this a conditioned deficiency.

It has been long known that glossitis and lingual atrophy are common developments in pernicious anemia. Also, it is recognized that these tongue changes may antedate the typical blood picture by months or years. They commonly occur in so-called idiopathic hypochromic anemia, and all of you are familiar with the beefy red, denuded tongue of pellagra and sprue. Commonly, we see a glossitis indistinguishable from the above in individuals whose nutrition is interfered with by serious operations, debilitating infectious diseases, malignancies and mental disorders, though these may not exhibit any characteristic blood changes. Cases of a deficiency syndrome, even with macrocytic anemia, have been reported secondary to chronic intestinal ulceration or obstruction, the deficiency being the result of disturbed absorption of certain necessary food factors.

*Because of late hour, author requested that paper and discussion be read by title only before the sixty-seventh annual session of the Medical Society of Virginia at Staunton, October 13-15, 1936.

During the past fifteen years I have had the opportunity to study eight patients who had well marked deficiency syndromes of the sprue type and on whom I made a diagnosis of non-tropical sprue. The manifestations varied considerably in each case, which suggests that the underlying cause must not be exactly the same in all cases. Three of these patients will be reported in some detail.

CASE 1. Mr. D., age 45, was first seen January 2, 1933. He complained of diarrhea, weakness and loss of weight. His family history was unimportant and he had never lived or traveled south of Virginia. He had had some sinus trouble in the past but this was not serious. Six years before this examination he had had an anemia of undetermined nature lasting three months. He complained of some dyspnea on exertion since he became anemic but no other cardio-vascular or respiratory symptoms. He had no urinary disturbance and his habits were good. He had lost thirty-five pounds since the onset of his present illness.

His illness began with diarrhea about July 1, 1932. This was quite free, the stools large and foul, not associated with pain and he did not pass blood or mucus. In September 1932, he was examined in a northern clinic where gastro-intestinal X-ray, including a barium enema, was negative except for some irritability of the colon. Proctoscopic examination showed no ulceration but a definitely hyperemic bowel mucosa. His blood disclosed hemoglobin 41 per cent, erythrocytes 1,700,000, with definite macrocytosis on the smear. He was given two blood transfusions there and ordered full doses of liver extract intramuscularly and high calorie diet. On this regime he showed no improvement subjectively and did not gain weight.

When I first saw him he weighed 109 pounds, he was quite emaciated, the tip of the tongue was moderately red and the teeth showed marked evidence of decalcification. General physical examination was otherwise essentially unimportant. Hemoglobin 77 per cent, erythrocytes 3,410,000; the red cells were large with a mean diameter of 8.55

microns; the urine contained a few hyaline casts; blood calcium 8.7 mgm. per 100 cubic centimeters; at sixty-five minutes after an Ewald test meal free HC1 in gastric contents was twenty degrees; the stool showed no parasites or ova and no significant organisms on culture.

He was placed on high protein diet with low fermentable sugars, was given large doses of ventriculin and the liver extract intramuscularly was continued in a dose of two cubic centimeters (Lilly extract) twice a week. This program was continued for two months with practically no subjective change in his condition. A check-up March 2, 1933, showed weight 115 pounds, hemoglobin 77 per cent, erythrocytes 3,180,000. X-ray of the right tibia disclosed definite decalcification of the bone. Without any other change in his treatment, he was started on one gram of calcium gluconate intravenously every day and from the first dose his improvement was rapid. His diarrhea ceased, he acquired a ravenous appetite and steady gain in weight was evident. His ration of liver extract was gradually reduced to 1 c.c. of extract 343 once a week, and he took calcium regularly by mouth. His blood calcium became normal, the teeth recovered calcium and X-ray evidence of decalcification of the tibia disappeared.

In September 1933, he was free from symptoms, his blood picture was normal and he weighed 158 pounds. When last seen in February 1935, he was normal in every respect and weighed 167 pounds.

Comment: This patient presented all the classical features of non-tropical sprue, with sore tongue, diarrhea, loss of weight, calcium deficiency and macrocytic anemia. He showed very little improvement until calcium therapy intravenously was instituted. From the first dose his progress was amazing.

CASE 2: Mr. V., age 33, first seen December 14, 1930. He complained of diarrhea and loss of weight. His past history was unimportant except that he had had an operation in May, 1930, for prolapse of the rectum. He weighed 129½ pounds with a loss of forty pounds since onset of his present illness.

His illness began rather acutely with nausea, vomiting and diarrhea. The former symptoms were of short duration but the diarrhea persisted with frequent movements, particularly at night. These were foul, copious, and he described them as having the appearance of "soap suds." Prior to seeing me he had had a gastric analysis which showed achlorhydria, and X-ray examination of the gastro-intestinal tract which was reported negative. The diarrhea had not been affected by large doses of liver extract by mouth and dilute hydrochloric acid.

My physical examination disclosed obvious loss of weight; the tongue was slightly atrophic; the rectum was moderately prolapsed and through the proctoscope the mucosa of the lower bowel was seen to be congested but not ulcerated. Smears from the mucosa contained a few amoebae which did not have the appearance of the hystolitica variety. Stool culture was not productive of additional information. X-ray of the chest was reported negative. Hemoglobin 60 per cent, erythrocytes 4,200,000; the blood smear showed moderate achromia of the red cells. Gastric analysis, using the Ewald test meal, disclosed no free hydrochloric acid until he was given 0.5 mgm. of histamine subcutaneously, following which free HC1 reached twenty degrees.

The acid and liver extract were continued and he was given emetine hypodermically and quinine irrigations of the colon. This caused no change in his symptoms. He was then ordered high protein, low residue diet, and large doses of aqueous extract of liver by mouth. The diarrhea continued, he developed glossitis, and his emaciation became extreme before his death February 9, 1931.

Autopsy limited to the abdomen was performed. The essential finding was marked catarrhal inflammation with atrophy of the entire gastro-intestinal mucosa and moderate enlargement of the mesenteric lymph nodes. The pathologist stated that the findings were consistent with the diagnosis of sprue.

Comment: This patient showed no improvement with any therapy. Perhaps if liver extract for intramuscular use had been available he might have been helped by it. The appearance of his intestinal mucosa at autopsy would certainly indicate that the natural avenues of food absorption were practically destroyed and this caused his death. One of my earlier cases came to autopsy with an almost identical course and pathological findings.

CASE 3. Mr. F., age 64, first seen April 11, 1934. He complained of diarrhea and pain and numbness in his hands, legs and feet. He gave a history of having spent several years in the tropics as a young man during which time he had had a prolonged attack of diarrhea. Otherwise he had had no previous gastro-intestinal disturbance. He had lost forty pounds in weight during the preceding year.

XUM

His illness began in April, 1933, with some soreness in the muscles of the legs, numbness about the ankles and the ends of his fingers. He had difficulty in finer movements in his fingers. He gradually developed weakness in his legs so that he was unsteady in his gait. In October, 1933, his bowels first became loose with three or four stools a day. These were large, brown in color, very offensive and contained some blood. Occasionally he had some nausea, his appetite was poor and he was troubled by flatulence.

His general physical examination was entirely negative except that his gait was of the spastic-ataxic type, the Rhomberg test was positive, the deep reflexes of the upper and lower extremities were absent, sensation in the lower extremities was preserved but abnormal, and sense of position in the extremities was disturbed. The blood count was normal and mean diameter of erythrocytes was 7.49 microns. The urine contained a moderate number of casts; blood and spinal fluid Wassermann tests were negative and the fluid was otherwise normal. Gastric analysis gave no hydrochloric acid secretion even after histamine stimulation. Gastro-intestinal X-ray examination was essentially negative. A film of the spine showed marked changes of hypertrophic arthritis. He was given dilute hydrochloric acid and liver in the form of lextron capsules and returned to his home. While there his physician gave him calcium gluconate intravenously and substituted aqueous extract of liver in large doses for the lextron with no benefit.

He returned on May 30, 1934, with the report that he was steadily growing worse. His food passed through him within four hours; the stools were large, brown in color and contained much undigested food. He had lost further in weight and strength. A recheck of his condition added nothing to the previous findings except that he was worse. It was felt that he had a chronic sprue and subacute combined degeneration of the spinal cord as is seen in pernicious anemia. He was advised to consult Dr. Thomas R. Brown in Baltimore. He was thoroughly studied there and in a letter Dr. Brown stated that he could add nothing to the above findings.

I have a letter from his physician in Covington who reports that patient's condition became progressively worse with no change in the diarrhea, except that finally he developed some mucus and blood in the stools, the latter mostly of tarry character. He was given liver extract intramuscularly as well as by mouth, dilute hydrochloric acid and, at the suggestion of Dr. Brown, bananas freely. He died apparently of general collapse July 24, 1935.

Comment: This patient presented a different picture from either of the previous ones. He did not have any tongue symptoms, his stools were not typical of the sprue type, he had an achlorhydria with clinical evidence of subacute combined degeneration of the spinal cord as seen in pernicious anemia but his blood never showed any of the changes of macrocytic anemia. He failed to improve with liver extract by mouth or intramuscularly, and calcium did not affect his symptoms. His progress was steadily down hill to his death, as in the previous patient. It is probable that his absorption difficulty was general and, although he was given adequate liver extract and calcium, these could not take care of the other deficiencies.

DISCUSSION.

Haynes and McBryde have recently published the results of their studies of nine cases presenting the sprue syndrome. They concluded that tropical sprue, non-tropical sprue and celiac disease are identical in their etiology and dependent on deficiency of accessory food factors. As indications of deficient gastro-intestinal absorption in sprue, they corroborated the findings of other investigators that the blood calcium and phosphorus are below normal in this condition and low curves for sugar content in the blood are constant with dextrose taken orally but are more nearly normal when the dextrose is given intravenously. Furthermore, as the patients improved these laboratory abnormalities approached the normal. Liver extract was the most important agent in restoring their patients to health.

X-ray examination of the small intestine has long been unsatisfactory but in the past few years, with improved technique, valuable information about this structure is being obtained. Observations of a patient at frequent intervals after a barium meal have shown in sprue dilated loops of bowel with pooling of barium in these loops. This finding lends support to the idea that bowel degeneration occurs with resultant interference with digestion and absorption.

A question which naturally arises is: Are the bowel changes the cause of the deficiency or the result of it? It seems probable that the deficiency is the primary cause but that eventually a vicious

circle is established, the result of degeneration abetting the deficiency. The obvious lesson to be learned is that the earlier the condition is detected and satisfactory treatment instituted and continued indefinitely under competent supervision, the better will be the outlook of our patients.

It is perhaps satisfactory at the present time to diagnose the three cases reported above as instances of non-tropical sprue. However, analysis of their protocols will show definite variations which suggest that different factors are at work. On the other hand, the differences might be the result of the same factor operating on different individual constitutions.

In the treatment of these patients, it is my experience, and that of others, that a diet high in protein content but low in fermentable sugars and cellulose residue will make their abdomens more comfortable. Their carbohydrates may be made up with milk and milk sugar or possibly with bananas or banana powder. Liver extract or concentrated vitamin B complex may be very helpful. If absorption is not adequate, the former may be given intramuscularly. Adequate amounts of calcium are indicated and again the injection method of administration may be advantageous. Some of these patients respond amazingly to treatment and I know of no greater satisfaction than to see one of these emaciated, listless individuals restored to normal weight and vitality. It must be realized, however, that some of them will have so much degeneration of their intestinal mucosa that it cannot be restored to function and the patient literally starves to death, even though he is ingesting adequate quantities of food stuffs. Certain of these patients will be found to have localized intestinal lesions in the early stages which may be amenable to surgical resection. One patient of mine, not included in this series, has been so advised but to date has refused operation.

CONCLUSIONS.

1. So-called non-tropical sprue is not a rare disease in temperate climates.

2. It is a dietary deficiency syndrome which may be primary or may be secondary to chronic gastro-intestinal lesions.

3. If seen early it may be entirely relieved by appropriate treatment, but in the late stages permanent organic changes in the intestinal mucosa may preclude recovery.

4. Certain cases present localized lesions in the intestinal tract which may lend themselves to surgical resection.

Professional Building.

DISCUSSION

DR. ALEX. F. ROBERTSON, JR., Staunton: Dr. Davis has reviewed the advancement of our knowledge in the study of deficiency disease, especially as the result of interference with absorption from the gastro-intestinal tract, and has given in detail the case histories of three out of a series of eight cases of non-tropical sprue. In connection with these cases and also with other types of deficiency disease it may be of value to emphasize certain points.

There are four common factors which may produce deficiency disease:

1. Supply.—Insufficient quantity and kinds of essential food elements (particularly vitamin deprivation) causing such conditions as beriberi and scurvy have been thoroughly worked out.

2. Production.—Deficiency of vital elements produced by the body itself, as hormones and vitamin-like substances, causing such conditions as pernicious anemia have been more recently established.

3. Absorption.—The author has particularly stressed the production of deficiency disease by faulty absorption. This may be due to a disturbed function of the absorptive mechanism, or to excessive and rapid loss through vomiting or diarrhea. Among the causes of faculty absorption may be listed achlorhydria, hypometabolism, infection and imbalance of food, especially an excessive intake of carbohydrates.

4. Utilization, Storage and Demand.—This factor may be operative in case of an increased demand above normal or interference with utilization and storage, as in childhood, pregnancy, infection and hyperthyroidism.

There are several extremely important points to be gained from this subject.

Deficiency disease is frequently due to multiple factors and the resulting clinical picture may be vague instead of clear-cut, and present symptoms associated with various deficiencies.

The minor symptoms of deficiency disease are usually missed unless kept in mind and looked for.

His first case report is interesting in that no improvement occurred until the calcium deficiency was corrected, and this deficiency was not suggested by the usual sign of hyper-irritability of the neuromuscular system.

In this connection, it is well to bear in mind that the following minerals need daily replacement—iron, and possibly copper, calcium, phosphorus, sodium chloride, and iodine.

The author has suggested that the second case might have been helped by liver extract intramuscularly, had this been available. With defective absorption so frequently present, it seems to me, that the parenteral use of liver extract is the method of choice in handling these cases.

The third case, except for its failure to respond to liver

extract, is more suggestive of pernicious anemia than of sprue. It would be interesting to know if an adequate amount of liver extract was given intramuscularly and if this failure to produce a rise of reticulocytes.

Some type of restricted diet is prescribed by the physician or taken up by the patient in practically every gastrointestinal disturbance and is often continued for a long period of time by the patient. A deficiency disease should be borne in mind as a potential complication in every chronic gastro-intestinal disease.

THE ELIMINATION OF BACK FLOW IN UTERO-SALPINGOGRAPHY.*

OREN DOUGLAS BOYCE, M. D.,
Rural Retreat, Va.

We have experienced considerable difficulty in obtaining satisfactory X-ray studies of the uterus and tubes due to leakage of the radiopaque material around the acorn tip canulae now in general use. It has been almost impossible to secure satisfactory fluoroscopic studies because of the difficulty encountered in moving the patient about with speculum and acorn tip canulae in place. For this reason we have devised a simple but efficient canula, using the Morowitz principle, and find it ideal for fluoroscopic studies of the uterus and tubes, both with radiopaque substances and with carbon dioxide in the Rubin's test.

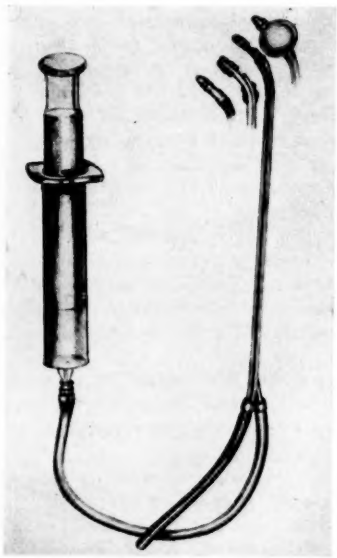

Plate No. 1.
1. Instrument tip with bulb inflated.
2. Complete instrument without bulb attached.
3. Longitudinal section of instrument tip.
4. Instrument tip with bulb attached and before inflation.

*Read before the Southwest Virginia Medical Association, at Wytheville, Va., September 25, 1936.

The instrument consists of a small eight-inch canula containing a large bore for the passage of air or radiopaque media from the syringe to the uterine cavity, and a small stainless steel tubing communicating with a rubber tube fastened about the canula two millimeters from the tip. This tubing communicates with an air-containing syringe and makes it possible to inflate the rubber tubing after the canula has been introduced into the cervical canal, thus affecting a tight connection between canula and uterine cavity.

Plate No. 2.—Uterine cavity distorted with a large fibroid tumor. Arrow shows inflated tip of instrument.

We have used this instrument for a number of cases recently, and find that a fluoroscopic examination of the uterus and tubes can be made with relative ease and without back-flow of radiopaque material even when the uterus and instrument are manipulated. Filling defects can be observed and the injection stopped when the opaque media reaches the fimbriated extremity of the tubes.

TECHNIC

The patient is placed in the lithotomy position. A bivalve or Sims' speculum is introduced into the vagina, the cervix is located and grasped with a tenaculum, a sound is passed into the cervix to the internal os to establish patency and direction. The sound is withdrawn and the described canula is introduced. The rubber bulb is then inflated with seven cubic centimeters of air and held in place for one minute. This inflation is released and a reinflation is then made with nine cubic centimeters of air and again held in place for one minute, released and another inflation is made with from ten to fifteen c.c. of air, depending on the size of the cervical canal. The communicating tubing is then clamped to maintain inflation of the rubber tip. The speculum and tenaculum are withdrawn and thus a non-leaking connection is made between the canula and the uterine cavity.

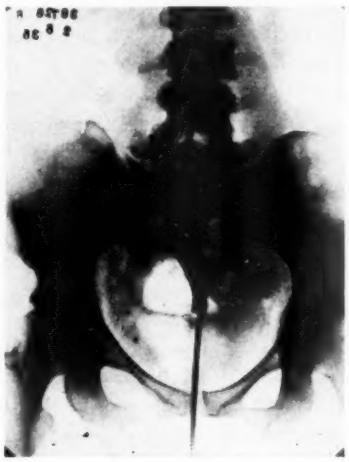

Plate No. 3.—Arrow points to small nodule in the fundus uteri.

The patient can then be moved from place to place and the initial injection of radiopaque material can be made under the fluoroscope without difficulty.

SOURCES OF ERROR IN TECHNIC

1. Rapid inflation of the rubber tip causes spasm of the cervix and pain to the patient.
2. Lacerated cervices must be closed with a tenaculum after the canula has been introduced and before inflation of the rubber tip.
3. Occasionally the rubber tip must be placed immediately inside the internal os before it will remain in place. This has happened in one case and may prove to be the method of choice when a Rubin's test is to be done.
4. Test patency of canula and fill the system with the radiopaque material before the canula is introduced.

CONCLUSION

Back flow of radiopaque material is eliminated during manipulation of the uterus for fluoroscopic examination.

APPENDICITIS AND CHILDREN—REPORT OF A CASE WITH INTESTINAL PARASITE.

W. P. FRAZER, M. D.,
Hamilton, Va.

No apology is needed for writing a paper on such a common disease when the diagnosis is often made too late, and the mortality rates are too high. In this paper I wish to make a few generalized remarks on appendicitis as occurring in children and to report a ruptured case with an intestinal parasite found in the peritoneal cavity.

Appendicitis is observed much more frequently in adults than in children, and in a large series of cases various writers give the incidence of appendicitis under five years of age varying between .8 per cent and 2.5 per cent.[1] Bolling[2] states that after the first year of life appendicitis is the most common of all the acute abdominal diseases. In children the mortality rate is much higher than in adults, due to the delay in operation because the condition is so much more difficult to recognize.

The symptoms of acute appendicitis in children are the same as those observed in the adult, but not so definite. Vomiting is noted with a greater regularity in children than adults, but the abdominal findings are never so constant or so reliable as in

the adult. In children more conditions outside of the abdomen give abdominal symptoms, and the constitutional symptoms are more pronounced than in adults. Then, too, in children the appendix is oftener misplaced, giving rise to diagnostic difficulties. This may be partly explained by the small abdomen of children, and the appendix is often as long in a child as in an adult. It often dips down into the pelvis, causing confusing symptoms; if abscess occurs in this position, it will cause irritative symptoms of the bladder and rectum. However, in children the inflammation is usually less localized and peritonitis is more frequent and widespread than in adults. The omentum has a great deal to do with this because in children it is not so well developed and cannot wall off the inflammatory process, and thus protect the peritoneal cavity. Because of the small omentum, and the fact that immunity is less than in latter years, the Fowler-Murphy-Ochsner treatment of appendicitis after perforation is not indicated in children. This procedure, which originated over a generation ago, has revolutionized the mortality rate of appendicitis in the large medical centers where it has been accepted. In children, operation as soon as the diagnosis is made is the procedure of choice, regardless of the stage of development.

In regard to the immediate cause of an attack of appendicitis little is yet definitely known. The old idea of connecting appendicitis with some food that has been eaten, particularly grapes, has long been abandoned. Probably the most important factors in the etiology of appendicitis are the position of the organ and the size of the lumen. The appendix is lined by a mucous membrane, the secretion of which — containing bacteria — is discharged through the narrow lumen into the cecum. Interference with this discharge, either by adhesions, or a kink in the organ, or a foreign body within the lumen causes distention of the appendix, which interferes with the vascular supply, and thus favors infection. During the past fifty years—the life span of the surgical treatment of appendicitis—writers, in discussing the etiology of appendicitis, mention intestinal parasites. They have occasionally been noted as the etiological agent in the adult, but their incidence would naturally be much greater for children, as intestinal parasites are much more common for this age group. About twenty years ago some writers discussed the relation of oxyuris and trichocephalus trichiura to the disease, but as these parasites are so often found in the submucosa and lumen of the normal appendix no definite conclusions could be drawn. Of the intestinal parasites, ascaris lumbricoides is the one most often found.

On March 29, 1936, I was called to see a two and a half year old colored boy, with history of loss of appetite and "stomach ache" for the past twenty-four hours. There had been no vomiting or diarrhea and the bowels had moved normally the day before. For the past month the child had occasionally passed a large round worm. Examination showed a moderately ill child lying perfectly still and in no acute pain. P. 126; T. 100.5; R. 22; W.B.C. 14,500; otherwise, the examination was entirely negative except for the abdomen. This was not distended and moved normally with respiration. There was slight muscle spasm over the lower abdomen, and some generalized tenderness to pressure, this tenderness being more marked over the right lower quadrant. A diagnosis of acute appendicitis was made, but the family refused to hospitalize the child, stating that he was too young. The head of the bed was propped up, and an ice-cap placed over the lower abdomen. The family was instructed not to give any laxatives and nothing by mouth except clear liquids. The parents insisted that nothing was wrong with the child except worms and insisted on a vermifuge. This was refused.

The following morning I was called back and informed that the child had passed a large round worm during the night. Examination showed T. 101; P. 130; W.B.C. 16,000. There was no change in the abdominal findings except that the tenderness was more marked on the right side, and on rectal examination definite tenderness could be elicited on the right side. This made me more positive that a diagnosis of appendicitis was correct, in spite of a history of passing a worm. The family still refused to hospitalize the child and I told them that it would be no use in my seeing the patient any more.

Two days later a member of the family came to me and stated that the child was much worse and that the family wanted to send the child to the hospital. I was also informed that the child was getting on better until the day before, at which time he was given a vermifuge and that night passed eight large worms. The child was immediately sent

to the hospital and examination at this time (four days after the onset of the illness) showed an acutely ill child—T. 103; P. 140; R. 28; the abdomen was rounded and rigid, and the child cried if it was touched. Dr. M. B. Hiden, of Warrenton, was called and he operated at once.

A right rectus incision was made and the lower abdomen was found filled with pus. The distal third of the appendix had sloughed away and there was a dead ascaris lumbricoides in the pelvis measuring six and one-half inches. The appendix was removed and its stump turned in twice. A great deal of pus was removed along with the worm. A rubber tissue drain was placed through the stab into the right lower quadrant, and the incision closed with catgut. During this time he was kept propped up high in bed and given fluids parenterally. After the fourth day his post-operative course was uneventful except that a subcutaneous abscess developed at the end of the incision which had to be opened on the twelfth day. The child was discharged on the eighteenth post-operative day in fair general condition, having been afebrile for five days. There still remained a small amount of drainage which persisted for ten days. Six weeks after operation the child was given a course of santonin for intestinal parasites, and is entirely normal now except for a slight post-operative ventral hernia which is gradually disappearing. I believe that as the child grows this hernia will disappear entirely.

Whether the worm in the peritoneal cavity was the cause or result of the appendicitis is hard to say. It seems to me that worms in crawling around in the intestinal tract would frequently enter the appendix if the lumen would permit, but it also seems that they would find it a blind alley and they would get out soon if death did not ensue. It is hard for me to conceive of a live worm remaining in appendix long enough to set up an inflammation. It is interesting to note that the above mentioned child never became acutely worse until he was given the vermifuge on the third day. This probably caused a spread of the infection and a migration of the worms.

CONCLUSIONS

1. Stress is placed on the difficulty of diagnosis of appendicitis in children. The importance of early diagnosis and immediate operation is emphasized.
2. Report of the recovery of a case of a ruptured appendix with a dead ascaris worm in the peritoneal cavity.

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STUDIES UPON THE PERSISTENCE OF ACTION OF DIGITALIS AND DIGITALIS BODIES.*

H. B. HAAG, M. D.,
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In the modern clinical usage of digitalis almost the sole pharmacological requirement of a digitalis body is that its acute toxicity be known, either in terms of "cat units," "frog units," or otherwise. It is unquestionably true that the toxicity of digitalis, as that of any drug, is of utmost practical importance. However, it can be demonstrated, for instance, that a digitalis preparation of high "cat unit activity" can be practically worthless when given by mouth due to poor absorbability from the gastro-intestinal tract. Again, a digitalis preparation of satisfactory potency and absorbability might be so rapidly eliminated physiologically as to be essentially valueless in the treatment of cardiac disorders. In view of such evidence it becomes necessary further to rationalize digitalis therapy so that due consideration is given not only to the usual biological values as determined upon cats, frogs, pigeons and other laboratory animals, but also to two other phases of digitalis pharmacology, namely absorption and persistence of action.

The present investigation was undertaken in the hope of shedding further light upon the problem of the persistence of action or "cumulative" effect of several members of the digitalis group, employing

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pigeons as test animals. The typical response of pigeons to digitalis has been described in several papers and biological values obtained with them have been compared to similar values secured with cats and also with clinical dosage in man.[1, 2, 3] The results presented here represent observations noted in about 1,200 experiments, details of which appear elsewhere[4] in which publication also a more complete bibliographic discussion is given.

The following preparations were employed in this study.

1. Four tinctures of digitalis (made respectively one each from an American leaf, an English leaf, a German leaf, and a Canadian standard reference leaf).
2. One specimen of g-strophanthin-Thoms (ouabain).
3. Three specimens of Verodigen (gitalin constituent of *Digitalis purpurea*).
4. One specimen of digitoxin.
5. One specimen of strophanthin Merck (k-strophanthin).

These were standardized by the intravenous pigeon fatal dose method as described in a paper from this laboratory several years ago.[2] Employing this technic the various preparations are made into suitable dilutions and injected slowly into the wing vein of an anesthetized pigeon. The minimal lethal dose (M.L.D.) is determined by dividing the weight of the pigeon into the amount of digitalis substance necessary to cause death. The values obtained from ten or more birds are averaged in obtaining the average minimum lethal dose or the "pigeon unit." Some of the digitalis preparations were also standardized, for comparative purposes, by the cat method of Hatcher and Brody.

The uniformity observed in the determinations of the biological activity of several batches of Verodigen initially tested led us to extend these experiments to involve five other specimens of Verodigen, two other brands of strophanthin, and two other specimens of digitoxin. The agreement in potency of the various batches of Verodigen and of the three brands of strophanthin studied was rather striking and in marked contrast to the discrepancies appearing among the several samples of digitoxin. Hatcher[5] has reported a similar difference between two specimens of digitoxin assayed by him upon cats. Table 1 lists the biological values of the individual preparations mentioned above.

TABLE 1.

THE AVERAGE M.L.D. OF VARIOUS DIGITALIS PREPARATIONS FOR PIGEONS AND CATS BY INTRAVENOUS INJECTION

PREPARATION	CAT M.L.D. MGM. X KGM.	PIGEON M.L.D. MGM. X KGM.
Tincture 1		87.8
" 2		106.0
" 3	95.4	125.7
" 4	102.3	129.0
Verodigen 1		1.04
" 2	.872	1.06
" 3		1.09
" 4*		.99
" 6*	.831	.93
" 7*		1.00
" 8*		.93
Digitoxin 1*		.294
" 2	.318	.383
" 3*		.478
Ouabain	.089	.192
Strophanthin 1*		.217
" 2	.138	.235
" 3*		.237

In studying the persistence of action of these various preparations upon pigeons the general technic of Hatcher[5] as previously performed upon cats was followed. A series of birds was injected intravenously with 75 per cent of the average acute M.L.D. (in the case of digitoxin, for reasons which will be discussed below, 40 per cent of the average M.L.D. was administered). Then at various intervals that amount of the same preparation necessary to produce death was established by the slow intravenous injection method. The difference between the new fatal dose and the one previously established upon normal controls then would represent the digitalis effectiveness still remaining in the animal.

The injection of 75 per cent of the average M.L.D. of any of the preparations led to a number of fatalities, some occurring only after several days; this was least pronounced when the tinctures or ouabain were administered, most marked with digitoxin. Actually digitoxin in amounts of 50 per cent of the average M.L.D. led to the death of 80 per cent of all the animals injected within 24-48 hours, so that finally a primary dose of 40 per cent of the average M.L.D. was selected for our persistence studies.

It is obvious that the more susceptible animals

*Specimens studied primarily to ascertain constancy.

are those that are killed by the initial injection; thus actually these studies involve observations upon the persistence of effect upon the more tolerant of the pigeon population. To compensate for this it was necessary to evaluate the tolerance of the surviving animals and this was done by assuming that their acute tolerance would be the same as that of the tolerant group of the same relative size employed in the standardization tests.

Ten or more pigeons were selected to establish the average persistence value for any particular time-interval. When persistence values of 10 per cent were obtained, usually no further attempt was made to secure a closer approximation of continuance of effect because of the limitations of the biological method of quantitative determination.

It is evident from Table 2 and Figure 1* that in pigeons three out of the four tinctures showed a rapid loss in persistence of action. This is in keeping with the results which Gold[6] observed upon four tinctures which he studied upon cats. Three of his were eliminated in several days, while one tincture (German leaf) showed persistence for twenty-two days; van Esveld[7] obtained similar values for two tinctures in cats. This observation stresses the view, which should be clinically significant, suggested by Gold,[6] and Hatcher and Weiss[8] that digitalis specimens might not only differ as to acute activity, but also as to the persistence of effect. Certainly, assuming uniform absorbability and like persistence phenomena in man, both the digitalizing dose and the maintenance quantity of Tr. 3, in terms of biological units, would be different from that of the other tinctures.

*From *Jour. Pharmacol. and Exper. Therap., 58,* 42, 1936.

TABLE 2.

PERSISTENCE OF EFFECT OF DIGITALIS SUBSTANCES IN THE PIGEON

DIGITALIS	PER CENT PERSISTENCE									
	DAYS									
Preparation	12 hr.	1	2	3	4	5	6	7	10	14	21
Tincture 1		39	14		13	4	—	—	—	—	—
Tincture 2	43	19	17	20	1	—	—	—	—	—	—
Tincture 3	48	38	25	19	21		17		18	10	—
Tincture 4	37	29	26	11		11	1	—	—	—	—
Verodigen No. 1			78		64				42	10	—
Verodigen No. 2	79	82	82		61	42		55	36	2	—
Verodigen No. 3		91	78		57			36	31	8	—
Digitoxin	+15			92				72		38	18
Strophanthin	77		72						49	24	10
Ouabain		55	41	28	16	10	—	—	—	—	—

Several years ago Eggleston[9] observed prompt therapeutic effects following the use of a fluidextract of digitalis by the high dose method, in which, however, the total amount administered to one patient within a period of about twenty-four hours was only

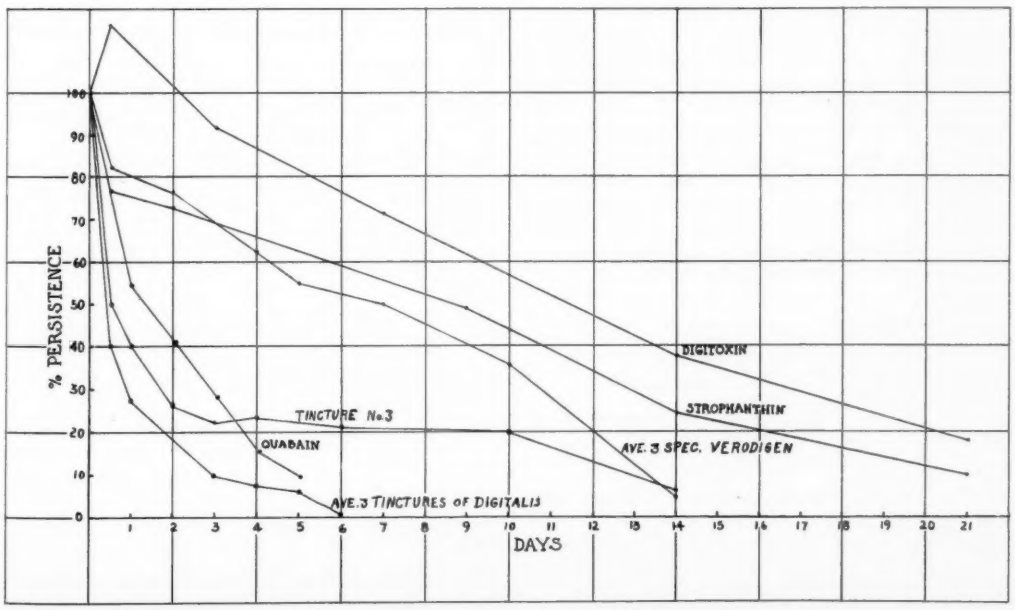

Fig. 1.—Resumé of the persistence of action of various digitalis substances in pigeons.

about one-eighth of that given to another patient without notable effects over a very much longer period. From Dooley's[9] observations upon this fluid-extract it is suggested that this discrepancy in clinical effectiveness was due to the fact that the fluid-extract contained an appreciable percentage of a quickly "eliminated" fraction.

Figure 1 demonstrates the marked persistence of effect of Verodigen in the pigeon. Clinically, likewise, the evidence is strong[10, 11] that Verodigen is quite persistent, and it might well be that this persistence of effect accounts for the fact that Verodigen is effective in one-third the dose as calculated from the "cat unit" as ordinarily determined.[10, 11] This view is strengthened by a comparison of the persistence curve of the tinctures with those of Verodigen; it will be found that Veridogen activity endured about three times as long as that of tinctures 1, 2, and 4.

Our results with one digitoxin (Figure 1) specimen are in keeping with the original observation of Hatcher,[5] who noted persistence in the cat for an interval of over three weeks. A limited number of persistence observations upon the weakest of the three specimens mentioned in Table 1, indicated that this particular specimen was eliminated within a week, and hence it might be that the somewhat conflicting reports concerning the persistence of effect of digitoxin might be accounted for upon lack of uniformity among the various specimens of digitoxin, as suggested by Gold.[6] Digitoxin seems to increase in its intensity of action for a short time following its administration; this has been previously remarked upon by Gold[6] from observations upon cats. Such findings should be of distinct clinical importance, particularly if digitoxin is to be employed by the "massive dose method."

Strophanthin, like ouabain, is usually assumed to be but poorly "cumulative," although Fraenkel in 1903[12] from observations upon cats remarked that the "prevailing opinion that strophanthin is not cumulative is certainly not so." It appears from our observations that it possesses a definite persistency of action; an observation which is reinforced by the recent findings of Kingisepp[13] demonstrating the difficulty of washing strophanthin out from a frog heart previously treated with the drug. To corroborate our observations upon pigeons we conducted similar persistence studies with strophanthin upon fifteen cats (at 3-5-14-day intervals) with almost identical results. The accepted idea of the low persistence of effect of ouabain (Figure 1) is borne out by our experiments upon pigeons, there being a complete loss of effectiveness five days after the administration of the initial dose. Incidentally, it might be mentioned that these two digitaloids, so effective by intravenous administration, are absorbed from the gastro-intestinal tract with such uncertainty that they should not be given orally.

SUMMARY AND CONCLUSIONS

Digitalis bodies have been assayed by slow continuous intravenous injections into pigeons. Various lots of Verodigen and strophanthin showed a remarkable constancy in acute toxicity, the reverse being true for digitoxin.

Persistence of action of various digitalis substances in pigeons was established by injecting 75 per cent (40 per cent in the case of digitoxin) of the average M.L.D. of the preparation, and then by determining at various intervals the amount of the same preparation necessary to produce death. Tinctures were found to vary in their persistence of effect, three showing no persistence of effect after five days, one, however, evidencing persistence for a period of over ten days. Ouabain showed a continuance of effect for five days; Verodigen up to about two weeks; strophanthin about three weeks; and digitoxin even longer. It might be well to mention that Weese[14] notes in his recent monograph upon digitalis the desirability of using clinically a preparation possessing definite "cumulative" effects, thus obviating a "see-saw" fluctuation in the physiological effect of the drug upon the heart.

In this investigation it was shown that two tinctures (No. 3 and No. 4) may have approximately the same biological potency; yet one (No. 3) might show a persistence of effect about twice that of the other (No. 4). Such observations indicate that the persistence of effect of digitalis bodies, as well as their acute toxicity, should be taken into consideration in the intelligent clinical usage of these substances.

Digitalis preparations might vary as to:

a. Toxicity
b. Absorbability
c. Persistence of effect (cumulative tendency)

Hence it would appear highly important for a clinician to become accustomed to the use of one preparation of digitalis, the potency of which is

constant from month to month and from year to year, and the absorbability and cumulative tendency of which likewise remain uniform. It should be borne in mind that although animal experimentation can supply valuable data as to uniformity of potency, absorbability, and persistence of effect of digitalis substances, it is still impossible in some instances to predict with much exactness the amount of the drug necessary for clinical digitalization or maintenance.

I would like to close with a pertinent remark credited to Fraenkel in 1935,[14] stating that "In spite of the fact that well-standardized digitalis preparations are today everywhere available, at no time has digitalis therapy in the various countries been such a tower of Babel as it is today."

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DISCUSSION

DR. JAMES P. BAKER, Richmond: Dr. Haag has presented here an excellent paper, it seems to me, covering enough experiments to render his results accurate and his conclusions amply justified. I think Dr. Haag's paper is particularly valuable at this time, when there are hundreds of preparations of digitalis and allied substances on the market. All of these drugs are standardized as regards their cat-unit value, or measure of acute toxicity, and undoubtedly this method offers a valuable measure of dosage as applied to patients. This, however, is not the whole story. I first became aware of the importance of other factors last year, when doing some work with Dr. Bloom at the Medical College of Virginia, treating some patients with Verodigen, which Dr. Haag has mentioned. This work is to be published.

The cat unit of Verodigen, as determined by biological assay, is about 1/80 of a grain, just as the cat unit of digitalis is about 1½ grains. We found early, however, that the amount of Verodigen necessary to give patients could not be calculated from its cat-unit value. Over and over again we secured the total therapeutic effect with 6/80 to 10/80 grain instead of a calculated ¼ grain. When in several cases we pushed the drug towards the calculated dosage (that is, ¼ grain), definite signs of overdosage appeared, namely, nausea, extrasystoles, and heart block. The only way in which we could explain this difference between the actual and the calculated dosage is that the drug has a very persistent effect. Certainly, as regards this drug, the persistence of effect was as important as the acute toxicity.

I should like to ask Dr. Haag one question, and that is whether it is feasible to state for any preparation its persistence of effect as well as its cat-unit value, when marketing such preparations.

DR. NATHAN BLOOM, Richmond: I should like to add to what Dr. Baker said about Verodigen. We used it quite extensively in the clinics and the outpatient departments of the Medical College of Virginia, and we found what he has stated, there, that we could not find the dosage for patients from the cat-unit value. We did find, however, that we could give them 1/240 of a grain and they would apparently get the full value from the digitalis. That was, apparently, the amount of drug they would excrete per day, also. We have followed that since and have found that 1/240 of a grain is equivalent to about 1½ grains of digitalis.

DR. HAAG, closing the discussion: I wish to thank Dr. Baker and Dr. Bloom for their remarks.

Answering the question as to whether one might demand from the pharmaceutical manufacturers information as to whether their preparation is promptly absorbed and what the persistence of effect is, I think this is just as reasonable as to ask for the cat-unit or other biological values. I think we might ask them to say whether its effect is cumulative, as compared to ouabian, for instance, and if it is absorbed promptly from the gastro-intestinal tract.

DIAGNOSIS OF APPENDICITIS IN CHILDREN.*

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This paper does not present any new symptoms, physical findings, or diagnostic precedures, but attempts to review briefly the old with the hope that diagnosis may be made early and with less difficulty. This accomplished it is obvious that morbidity and mortality will be reduced.

The appendix is found at the end of the anterior taenia coli. It usually occupies the lower right abdominal quadrant, but from failure of rotation of the colon, it may lie just below the liver under the spleen or in the left lower abdominal quadrant near the sigmoid. It has been found in the true pelvis, in the sac of an inguinal, umbilical, femoral or ventral hernia. It may be retrocaecal or retroperitoneal.

The appendix in children is fully developed at birth and relatively longer than in the adult. It varies in size, shape, length and location, though it is usually about 10 cm. long. It is found higher and nearer the mid-abdomen than in the adult due to the undeveloped caecum. Its lumen is larger and guarded by an imperfect valve, the valve of Gerlach. It is thin walled and so rich in lymphoid tissue that it has been called the abdominal tonsil. The blood supply is a single terminal artery, the appendicular branch of the ileo-colic. The mesoappendix is short, impoverishing the blood supply of the projected tip.

The omentum in the child is shorter and thinner, thus lacking the protective qualities of that of the adult.

Appendicitis may be acute, subacute or chronic.

Acute inflammation may involve just the mucous lining and be catarrhal, necrotic, ulcerative or purulent. If involving the outer walls it may be acute hyperplastic, phlegmonous, or gangrenous. The condition may be aggravated by an obstruction of the lumen, so-called obstructive appendicitis or characterized by a tendency to perforate as in ulcerative, gangrenous, and phlegmonous, perforative appendicitis.

Chronic forms of appendicitis, mainly the result of acute attacks, are chronic catarrhal, chronic hyperplastic, chronic purulent, atrophic or obliterative, tuberculous and actinomycotic. I have observed few cases of chronic appendicitis in children.

Appendicitis is a disease of civilization and the white race, being observed less frequently in negroes, aborigines and races dwelling in the tropics. It occurs more often in males and there seems to be a familial influence due perhaps to environment, food, types of infection, and common anatomical peculiarities favorable to infection.

Appendicitis often follows infections that produce general lymphoid hyperplasia, such as measles, scarlet fever, tonsillitis, influenza, typhoid fever and enteritis. Fecal concretions, foreign bodies, intestinal parasites and trauma as from a blow or a fall; inflammation of adjacent organs and congestion of the menstrual cycle may be exciting causes.

The bacteria in the order of frequency associated with appendicitis are: Bacillus coli communis, Staphylococcus pyogenes aureus and albus, Streptococcus, Pneumococcus, Bacillus pyocyaneus, Bacillus Tuberculosis, Streptothrix actinomycosis and a number of anaerobic organisms.

An appendicitis with local peritonitis or abscess due to a streptococcus infection carries a bad prognosis as to recovery. If more cultures were made, prognosis might be more accurate.

The classical symptoms of appendicitis are pain, nausea and vomiting, localized tenderness and rigidity at McBurney's point, fever and acceleration of pulse. There is a leucocytosis of 9,000 to 18,000 and a relatively high polymorphonuclear leucocytosis.

Drs. Muller and Ravidin claim that the pain when inflammation is localized in the appendix is due to a stimulation of the sympathetic with referring of this stimuli to the cutaneous branches of the tenth and eleventh costal nerves, thus the first pain is around the umbilicus. And when the inflammation has spread to the outer wall and adjacent structures, the pain is localized in whatever region the appendix happens to be. This secondary pain is a stimulation of the somatic nervous system, the result of inflammation of sub-peritoneal tissue.

Appendicitis in children must be differentiated from pneumonia, throat infections, pericarditis, the

*Read before the Seaboard Medical Association of Virginia and North Carolina at Tarboro, N. C., December 1-3, 1936.

acute infectious diseases, typhoid fever, enteritis, ileo-colitis, ordinary colic from flatus, intussusception, intestinal obstruction, Meckel's diverticulum, acute mesenteric lymphadenitis, ureteral stone, pyelitis, distended bladder, ovulation and menstrual pain, tubercular spondylitis, osteomyelitis of ileum and femur, and acute suppurative arthritis of hip joint.

In pneumonia the pain is more superficial and not intensified on pressure. The patient is more prostrate, there are abdominal breathing and the usual signs in the chest, the leucocytosis is higher and the prostration greater. Urban Maes says, "The child with appendicitis will not rest or let anyone else rest." The right leg or legs are usually flexed, the breathing is more of a costal type, not characteristic of children. The pain and tenderness are intensified on deep firm pressure and the temperature and pulse are not so high or rapid.

In throat infections and tonsillitis the pain is superficial, not intensified on pressure, the temperature and pulse are higher and more rapid, and the pathology is seen in the throat.

In pericarditis the high temperature, rapid pulse, friction rub, bulging precordia, thrills and prostration would be diagnostic. In the other acute infectious diseases, the history of onset, temperature and rapid pulse, the prostration, the abdominal type of breathing and skin rashes would serve to differentiate. In typhoid fever, enteritis, ileo-colitis, the history, prostration, and laboratory findings would not indicate the appendix. The pain of ordinary colic from flatus is relieved by firm pressure and upon expelling the gas. Intestinal obstruction, Meckel's diverticulitis, acute mesenteric lymphadenitis would hardly be differentiated. At this point it is well to mention that R. L. J. Kennedy of Rochester, Minn., writes that he has observed the mesentery lymph nodes, especially the ileo-caecal nodes, are often found enlarged and the appendix showing inflammation microscopically when grossly it appears normal. This finding would infer that many apparently normal appendices are really diseased, and the latter the cause of symptoms instead of the lymphadenitis.

Intussusception always presents a mass with frequent stools of blood and mucus. In ureteral stones the urinary symptoms and findings with X-ray examination and an absence of localized tenderness would direct one to the urinary tract. In case of pyelitis the temperature is higher, there are urinary symptoms and pus in the urine in large amounts. A distended bladder is usually relieved by measures which cause it to empty. Ovulation and menstrual pain can be differentiated from appendicitis by the history, absence of nausea and vomiting, fever, rapid pulse, leucocytosis, the short duration of the pain without flank rigidity, and localizing symptoms. Tubercular spondylitis, osteomyelitis of the ilium and femur, and acute suppurative arthritis, or as Dr. Hubert Royster says, diseases outside of the abdomen do not have to be differentiated.

In the examination, the history is very important. Oftentimes an intelligent one is not obtainable; sometimes the child, if old enough, will give a more direct and better history than parent or nurse. In the absence of a satisfactory history, one has to rely mainly on physical and laboratory findings, experience and intuition.

In beginning the examination, the approach and manner should be kindly and quiet. The hands should be warm and gentle palpation should begin on the side opposite to the pain and be gradually continued until the area of pain or soreness is reached. Firm deep pressure over McBurney's point will elicit pain sometimes when rigidity and more superficial tenderness are not present. To release the pressure suddenly and elicit sudden pain is suggestive of peritonitis. A rectal examination should always be made in doubtful cases. This should be accomplished as gently as possible, being careful to palpate the side opposite the suspected site of diseases first. The gloved finger can be made to enter the rectum with little pain if firm gradual pressure is used. An analysis of a number of cases treated at the Memorial General Hospital over a period of years, showed increasing morbidity and mortality with increasing delay of diagnosis and treatment. I will add that I was surprised at the low morbidity and mortality although many were late cases.

In conclusion, I am wondering if other writers on this subject have not found it much easier to write than to diagnose. For sometimes nausea precedes pain as is observed by Urban Maes. The pain is not always at first general and around the umbilicus but may begin and remain in the right lower quadrant or flank. Appendicitis is often associated with other diseases or follows close on the

heels of acute infectious diseases as observed by Brennan of Chicago. A history is not obtainable and a frightened child cannot be examined satisfactorily. A mother is not cooperative in your efforts to place the child at bed rest so that observation can be carried out. Purgatives of all sorts are still given to children for abdominal pains and cramps by their parents and nurses. Nevertheless, if one approaches each probable suspect with a thorough knowledge of the variable anatomy of the appendix, its histological structure, and the varied causes of this disease, its familial tendencies, a knowledge of the physiology of the pain together with the all important history, many cases will be diagnosed early and correctly that are now being diagnosed only after local peritonitis has begun.

ORTHOPAEDIC TREATMENT OF THE MUSCULAR DYSTROPHIES AND MUSCULAR ATROPHIES.*

GEORGE A. DUNCAN, M. D.,
Norfolk, Va.

The diagnosis and prognosis of these two diseases have been recognized for many years, but the contributions to the therapy for the unfortunate patients with these diseases has yielded very little of value. Recent attempts to adjust the unbalanced amino-acid metabolism that exists in these patients and the use of the glandular extracts has offered some encouragement from certain groups of investigators and its value discounted by others. I will not enter into a discussion of the use of ephedrine, glycine or any other drug used in the treatment of these diseases except to state that the concensus of opinion is that their effect is only transient in nature. Glycine is itself most beneficial in myasthenia gravis, but otherwise its use is of doubtful value. Remissions are commonly found in many of the muscular atrophies, so that the use of any drug during this stage may receive unwarranted credit.

In discussing the orthopaedic treatment of these two diseases it is most important to bear in mind that their pathogenesis is entirely different. The progressive muscular dystrophies (primary myopathies) are associated with very definite and quite extensive muscular degeneration, while the progressive (nuclear or spinal) muscular atrophies are primarily due to changes in certain nerve cells of the spinal cord.

With this understanding of the pathogenesis of the two diseases I will consider the orthopaedic part in the care of the primary myopathies.

Progressive muscular dystrophy is a condition characterized by muscular wasting that affects various groups of muscles. It usually runs a slowly progressive course with or without hypertrophy. It may be congenital or hereditary, but usually begins before puberty or adolescence. As to the course of the disease, an awkwardness in movements are noted. Certain muscle groups, particularly that of the calf, are enlarged. The deltoid, triceps, neck muscles and those of the forearm may stand out. Simultaneously, others—pectorals and latissimi dorsi—may become atrophied; consequently, there is a characteristic attitude on standing. When the pelvic muscles are involved there is an increase in the lumbar lordosis on standing, and a waddling gait noted on walking. The disease is essentially bilateral. It runs a protracted course and has been known to persist for thirty or forty years. As to its differential diagnosis, it may be confused with congenital dislocation of the hip because of the waddling gait, but on examination there is no telescoping of the hips, and roentgen-ray examination is negative for any dislocation. It may simulate spondylolisthesis, because of the increased lumbar lordosis, but here too the roentgen-ray establishes your diagnosis. Because of the clubbing of the hands and feet that is occasionally seen it may be confused with arthrogryphosis, but in arthrogryphosis there is a peculiar spasticity associated with the deformities.

The following primary muscular dystrophies are varieties of the same disease just described, but are separately classified according to the part involved. Among these we recognize, faciohumeral, Erb's juvenile scapular, bulbar and the infantile hereditary types.

As to the treatment, all of these types should have

*Read before the Norfolk County Medical Society, November 23, 1936.

light massage and exercises for the involved parts. These exercises must be graded, such as the use at first of light dumb-bells for the hands and upper extremities, and graduating to heavier ones as the occasion arises. Similar exercises may be worked out for the lower extremities. Electrical stimulation of the muscles, but not to the point of fatigue, is of some aid. Decalcification of the bones caused by the atrophy of disuse occurs in the late stages of this disease, and fractures occasionally occur. They are cared for in the usual manner.

In amytonia congenita, another primary myopathy, in which there occurs a flabbiness and evenly distributed atrophy of both lower extremities, massage, electrical stimulation and warm baths are indicated.

In myotonia congenita, where a rigidity of the muscles is encountered after resting, carefully regulated exercises and the advice to seek a warm climate are indicated. The exercises should aim to teach the individual to make his motions slow at first and, with repetition, confidence will be established and he will be able to perform his movements faster and with more accuracy.

Braces may be applied to prevent deformities in this group of diseases, but, in the main, they really do more harm than good, for they are an additional burden on an already deficient muscular system. If deformities are to be corrected it is far better to obtain this correction by tendon lengthenings or stabilization procedures on the involved joints.

In summary for this group, the treatment is the same as for muscle wasting from disuse as you commonly see following fractures—that is, the judicial use of local heat, massage and exercises. The muscles are involved; therefore, all of our measures are directed toward their restoration of function.

I will now discuss the second group, consisting of the progressive spinal muscular atrophies.

A variety called Aran-Duchenne involves mainly the small muscles of the hand and later the wrist and forearm, producing a claw hand. Another type is the hereditary, familial type of infancy, called Werdnig-Hoffmann, in which the trunk muscles are involved, producing a scoliosis; in still another type, the subacute or chronic poliomyelitic patients may have the lower extremities involved. In general, the treatment of this group is rest and avoidance of exercises. Braces and splints may be applied to prevent deformities, but, in the main, the less done the better. These diseases are usually progressive and death usually ensues before many years. There is one exception, and that is in the patients with subacute or chronic poliomyelitis. Occasionally the disease becomes arrested, and then gentle massage is indicated.

In amytrophic lateral sclerosis, where there is a flaccid lower motor neuron and a spastic pyramidal tract, exertion of any nature is avoided. Treatment is palliative, as ultimately death ensues, either from asphyxia or inanition.

The most common deformity associated with Friedreich's ataxia besides the ataxic gait is a claw foot, resulting in a high arch, dropping of the forefoot, contracture of the toes, resulting in the formation of corns on the dorsal aspect of the toes and painful calli beneath the metatarsal heads. Exercises for the feet are given in an effort to prevent the contractures from increasing; metatarsal pads as insoles or bars on the shoes are employed to remove the pressure from these calli. In advanced cases, an anterior tarsal section is done to decrease the height of the longitudinal arch of the foot, thereby giving a better treading surface. However, if there is any lateral imbalance of the foot a sub-talar arthrodesis is the better operative corrective and stabilization procedure. Both of these bony operations are frequently accompanied by tendon lengthenings or tendon transplantation operations in an endeavor to remove the contracting force of the calcaneal and the long toe extensor tendons.

In Charcot-Marie-Tooth type of peroneal muscular atrophy a foot drop occurs. This may be improved by the use of a brace. Occasionally an equino-cavo-varus deformity will occur and most of the patients are very much better off by having the foot deformity corrected by operations than wearing heavy cumbersome braces.

In summary for this group, leave those patients alone whose life expectancy is very short; for the others, give them the advantage of enjoying life as normally as possible by relieving them of what handicaps you can, by either the use of braces or corrective operative procedures.

Wainwright Building.

Report of the Committee of the Medical Society of Virginia to Review the Question of Syphilis Control

NOTE.—The following paragraph in a letter from Surgeon General Thomas Parran of the U. S. Public Health Service to the President of the Medical Society of Virginia explains the appointment of this Committee by Dr. Hutcheson and also the function of the Committee:

I would request that your State Medical Society appoint a committee to advise with your State Health Officer and with me regarding the syphilis control program in each State. Specifically, it is my hope that this committee will (a) review the available information on the syphilis problem in the State; (b) cooperate in assembling necessary additional information concerning the nature and extent of the facilities which now exist for the diagnosis, treatment, and public health control of syphilis; and (c) recommend such supplemental and new State and local facilities and measures as seem desirable in dealing with this infection which is nation-wide in its importance and distribution.

Your Committee has reviewed the available information on the syphilis problem in Virginia and the recent literature on the control of syphilis. (See Supplements 1 and 2 attached to Report.) The present program is entirely inadequate. The necessary changes and additions will require substantial financial appropriations. The responsibility of eventually eradicating syphilis must be accepted by the general medical profession. We hope that the organized Public Health facilities in the State will be able to secure appropriations which will allow them to take a more active leadership in this program.

Your Committee recommends the following Syphilis Control Program for Virginia:

INTRODUCTORY STATEMENT

Syphilis is one of the most prevalent of diseases, it being estimated that there are 125,000 cases in the State of Virginia. Syphilis is one of the most pernicious of diseases because of its effect in causing physical and economic disability. Since effective methods of public health control exist, a syphilis control program probably offers more return for the money spent than any other phase of public health work.

A program for syphilis control should be organized as a program to prevent the spread and the progression of an infectious disease. It should be separated from but should work in harmonious cooperation with programs of sex education and social hygiene. Its organization should be modeled after existing health programs to control such diseases as diphtheria, typhoid fever, or poliomyelitis. The state and local health departments should be equipped to consult and aid in the diagnosis of a case of syphilis and should offer epidemiological assistance in the investigation of sources of infection and contacts and the follow-up of individual cases until adequate treatment has been administered. The state and local health departments should offer assistance as funds are available in the subsidization of the treatment of syphilis by clinics or physicians when the patient is unable to pay.

I. REPORTING.

1. *Morbidity reports.*

It is believed that the State Health Department should send Return Post Cards to each physician at monthly intervals. The physician should be requested to report only the number of cases treated, but there should be some classification of the cases. The names of the patients should not be requested on the morbidity reports. The Health Department should analyze the reports at frequent intervals and make these statistics available to the profession.

2. *Epidemiological reports.*

Physicians should have available epidemiological report cards which should be sent to the local health officers when requesting their assistance in following delinquent patients or when investigating sources of infection or contacts. The physician will use his discretion in reporting names and addresses. These cards should also be prepared so that they may be used for requesting drugs and literature.

II. LABORATORY.

1. The State Health Department should provide *dark-field examinations* for the diagnosis of early syphilis. The delayed dark-field method may be used for outlying districts. Whenever it is possible, immediate dark-field examinations should be available. There should also be a list prepared of the physicians and technicians equipped and qualified to make immediate dark-field examinations.

2. *Serological.*

The state laboratory performs serological diagnostic tests free at the present time. The facilities should be increased as the requests for examinations become more numerous.

It seems advisable that physicians cooperate when requesting an examination by stating whether it is for diagnostic purposes or to check treatment. The laboratory should give preference to diagnostic tests and mail these reports as promptly as possible.

A system of cross-checks between laboratories should be set up under the direction of some laboratory expert and a plan of periodic checks should be established.

III. DRUGS.

The State Health Department distributes anti-syphilitic drugs at cost at the present time. The free distribution of drugs would seem a justifiable partial subsidy, but it is believed that it would also be advisable for the state to provide a more liberal subsidy for the treatment of indigent patients.

IV. TREATMENT OF THOSE UNABLE TO PAY PHYSICIANS' FEES.

The established clinics should be assisted financially by state and local health departments. New clinics should be established in selected localities. Patients living in localities not served by clinics might be treated by a local physician. Physicians treating a case of syphilis could receive a minimum fee for a minimum course of treatment from public funds. It would be advisable to have most cases thus treated seen by a consultant at the beginning of treatment.

In certain localities situated near treatment centers it may be found economical to subsidize the transportation of certain patients to clinics rather than have them treated locally. This will be a local problem.

V. NEW FACILITIES NEEDED

It is necessary to have a State Director of Syphilis Control connected with the State Health Department. There should be several field consultants working under this Director. When qualified, a local health officer could serve in this capacity. In other localities some designated expert should serve in a part-time capacity. Arrangements should be made to allow a physician to call on these consultants without having to subject his patient to a double fee. The extent to which the treatment of syphilis in clinics and by private physicians can be subsidized by public funds will depend on the amount of money made available for the syphilis control program.

A list of treatment centers in the state should be prepared and distributed for the use of transient and transferred patients. It seems advisable to establish at the present time a series of new clinics at centers of population where facilities are not available. Mobile clinics may be organized for use in rural areas.

VI. EPIDEMIOLOGY BY PHYSICIANS

When a physician discovers a case of infectious syphilis he may report the case to his field consultant. The consultant will assist in the diagnosis and discuss the advisable epidemiological investigation.

In addition to personal instruction the physician should give the patient an instruction sheet. (This to be supplied by the State Health Department.) The State Health Department should supply outlines of the procedure to be used in investigating sources and contacts. There should be prepared sample outlines of the letters to be used. (See Supplement 3.)

The physician should be able to demand the cooperation of the local and State Health Departments in his investigation and follow-up work.

VII. STANDARDIZATION OF TREATMENT.

The Cooperative Clinical Group outline of treatment is recommended as the most authoritative available. Copies of this outline should be sent to each physician in the State. (See Supplement 4.) It should be used as a guide to be altered as indications arise. Drug reaction, concurrent organic disease, old age, etc., will indicate individualization of treatment.

VIII. HOSPITALIZATION.

Hospitalization for isolation is not required. Hospitalization of cases with treatment reactions and severe manifestations of late syphilis will continue to be a local problem.

IX. PRENATAL TREATMENT.

It is recommended that it be the practice of all clinics and private physicians to make a serological test as early in pregnancy as possible and to repeat the test later during pregnancy—during the eighth month.

It is recommended that the Cooperative Clinical Group outline of treatment be used. (See Supplement 5.)

It is further recommended that pregnant women with a history of syphilis be treated regardless of the amount of previous treatment received or the present seriological status.

X. EDUCATIONAL AND INFORMATIVE PROGRAM.

The Medical Profession.

It is believed that the profession will derive the greatest educational benefits by cooperation with the plan as outlined above. *Additional instruction through post-graduate courses and periodic literature should be fostered.*

Adequate undergraduate instruction should be provided by medical schools. A description of a state syphilis program should be included in the undergraduate course.

Civilian Instruction.

The discussion of syphilis in a health education program should be included under the heading of infectious diseases rather than under sex hygiene. A program of public lectures, radio talks, or newspaper articles should be very conservatively planned. Only well-informed and well-qualified speakers and writers should be used. The instruction of the older high school and college students would reach the ages for optimum results. It would be more advisable to have these individuals instructed in their regular physiology and biology courses rather than by special lectures.

The most valuable lay instruction will probably be accomplished by instructing patients and through them reaching their contacts.

XI. PROPHYLAXIS.

The question of prophylaxis should be deferred for the present. It may be reconsidered later when the above program is well established. It is recognized that local chemical or mechanical prophylactic measures scientif-

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ically applied may be important factors in the prevention of syphilis.

THE COMMITTEE TO REVIEW THE QUESTION OF SYPHILIS CONTROL
D. C. SMITH,
R. D. KIMBROUGH,
E. E. BARKSDALE,
ENNION WILLIAMS, *Chairman.*

SUPPLEMENT 1

1. The Control of Syphilis, A Symposium. (Supplement No. 2 to Venereal Disease Information.)
2. Venereal Disease Control Program in Virginia. (Venereal Disease Information, Vol. 17, p. 205, July, 1936.)
3. Form letters used for epidemiological investigation by the Department of Syphilology of the University of Virginia Hospital.
4. A scheme for the treatment of early syphilis. Page 35 of Reprint No. 13 from Venereal Disease Information.
5. A scheme for treatment of the pregnant syphilitic woman (from Venereal Disease Information, Vol. 17, p. 42. February, 1936.)

SUPPLEMENT 2

STATE VENEREAL DISEASE CONTROL PROGRAMS, VIRGINIA
(V. D. I. Vol. 17, page 205)

The Virginia Department of Health assists in the operation of clinics for the treatment of syphilis and gonorrhea. The work is under the supervision of the State Health Officer. Free treatment is given to indigents only. If the patient is charged, the amount varies from 25 cents to $5.

Neoarsphenamine, sulpharsphenamine, mapharsen, and bismuth salicylate are furnished to clinics and physicians. A charge is made. No drugs are supplied for the treatment of gonorrhea.

The Wassermann is the routine test used at the State serologic laboratory; the Kahn test is used as the routine in branch laboratories. Microscopic examination for the gonococcus is available. The laboratory services are free.

Efforts are made to find sources of infections. Members of the family or other contacts are examined. This work is done by the local health officer.

A State law requires reporting. Cases are reportable to the local health officer and to the State Health Department by serial number, or by name and address when the patient is considered a common source of infection. Names of patients discontinuing treatment while still infectious are available to the health authorities. Efforts are made to persuade physicians to report deaths due to syphilis or gonorrhea as such.

The following pamphlets prepared by the United States Public Health Service are distributed: (1) Manpower; (2) Healthy, Happy Womanhood; (3) Keeping Fit; (4) Sex Education in the Home; (5) Sex Education in the Schools; (6) Wonderful Story of Life (boys); (7) Wonderful Story of Life (girls); (8) Facts About Venereal Diseases.

Bulletins prepared by the State Health Department are based on material prepared by the Public Health Service.

Educational work with the schools is not included in the State program.

SUPPLEMENT 3

FORM LETTERS USED FOR EPIDEMIOLOGICAL INVESTIGATION BY THE DEPARTMENT OF SYPHILOLOGY OF THE UNIVERSITY OF VIRGINIA HOSPITAL

Our records show that a recent letter sent to you in regard to your possibly having a serious blood disease has been unanswered.

It is quite important that you return to this Clinic for further blood studies and treatment of your blood disease if necessary. As was stated before, the blood trouble has very serious complications and dire consequences if left untreated.

If it is impossible to return to this Clinic, I suggest that you report to your local physician and have him correspond with us in regard to the nature of your difficulty.

The blood test taken when you were in the hospital some time ago shows that you may be suffering from a very serious blood disease. This disease is often very slow in showing up, but may be very serious if allowed to go untreated. You should make every effort to return to the clinic as soon as possible to have the blood test repeated and to have treatment should it be necessary.

If you find it impossible to return to the hospital you should see your family physician and have him communicate with us.

A friend of yours is now coming in to this hospital for treatment of a very serious blood disease. This disease is often very slow in showing up, but may cause a great deal of trouble if allowed to go untreated. Since your friend has this disease, it may be possible that you have contracted it also. You should make every effort to come in to the hospital for examination and advice.

If you cannot come to the hospital you should see your family physician and have him communicate with us.

Our records show that you were examined and treated here some time ago. Your trouble is not easily cured, and when not cured may lead to very serious consequences.

It is advisable that you return for examination and advice. If you cannot return or have taken treatment elsewhere, please advise me by letter.

SUPPLEMENT 4

A SCHEME OF TREATMENT FOR EARLY SYPHILIS
(*From Reprint No. 13, Venereal Disease Information Vol. X. February 20, 1929.*)

After this brief but essential discussion of the principles of treatment, a suggested outline of treatment is presented in tabular form.

1. Early diagnosis and immediate treatment.
2. Complete physical and neurologic examination, accurately recorded, before treatment is begun.
3. Treatment:

DAY OR WEEK	ARSPHENAMINE	INTERIM TREATMENT	BLOOD WASSERMANN REACTION	REMARKS
Day				
1	0.3-0.6	----------	1	Arsphenamine dosage for first 3 injections at level of 0.1 gram for each 25 pounds body weight. Average subsequent dosage, 0.4 gram men; 0.3 gram women. In average patient all lesions heal rapidly and blood Wassermann reaction becomes negative during first course. If arsphenamine cannot be used, substitute 8 to 10 doses 0.3 gram silver arsphenamine, or 10 to 12 maximum doses 0.9 gram neorsphenamine. This applies also to subsequent courses.
5	.3-0.6			
10	.3-0.6			
Week				
3	.4			
4	.4			
5	.4			
6	.4			
7	.4	----------	1	If mercury is used note overlap of 1 week at end of first and start of second arsphenamine courses. No overlaps necessary with bismuth. At this point a few days without treatment may be dangerous. Neurorecurrence.
8	----------	Bismuth, 4 doses, 0.2 gram and K. I., or Ung. Hg. and K. I.		
9				
10				
11				
12	.4	----------	1	Arsphenamine starts, bismuth stops. Watch for provacative Wassermann reaction after first dose of arsphenamine.
13	.4	----------	1	
14	.4	----------	----------	Try to prevent short lapses in treatment, especially at this early stage.
15	.4			
16	.4			
17	.4	----------	1	
18-23	----------	Bismuth, 6 doses, or Ung. Hg. and K. I.	----------	Bismuth is better than mercury. Use it if possible. Examine cerebrospinal fluid routinely at about this time.
24	.4			
25	.4			
26	.4			
27	.4			
28	.4			
29	.4			
30-37	----------	Bismuth, 8 doses, or Hg. and K. I.	----------	
38	.4	----------	1	
39	.4			
40	.4			
41	.4			
42	.4			
43	.4	----------	1	Patients with seronegative primary syphilis may cease treatment here, if blood Wassermann reaction has always been negative.
44-53	----------	Bismuth, 10 doses, or Ung. Hg. and K. I.	----------	Note that bismuth or mercury courses are gradually getting longer—4, 6, 8, and now 10 weeks.
54	.4	----------	1	
55	.4	----------	----------	The average seropositive primary or early secondary patient should have at least 5 courses of arsphenamine.
56	.4			
57	.4			
58	.4			
59	.4	----------	1	
60-69	----------	Bismuth, 10 doses, or Ung. Hg. and K. I.	----------	It is safer to finish treatment with bismuth or mercury rather than with arsphenamine.
70-122	(1)	No treatment ----------	6-12	Blood Wassermann every month if possible; at least every other month.
123	Complete physical and neurologic examination, spinal puncture, and if possible, fluoroscopic examination of cardiovascular stripe. Thereafter, yearly physical examinations, blood Wassermann every 6 to 12 months. If the two spinal fluid examinations above are negative, this need not be repeated.			

[1]Probation.

NOTE.—Doctor Cole recommends 10 to 12 doses to a course. The maximum arsphenamine dose should be 0.6 gm., better 0.4 for a man and 0.3 for a woman; neoarsphenamine 0.6, or 0.75 gm. for a large man.

SUPPLEMENT 5

TREATMENT OF THE PREGNANT SYPHILITIC WOMAN

(V. D. I. Vol. 17, p. 42)

If the diagnosis is made early, an intravenous injection of arsphenamine (0.2 to 0.4 g) or neoarsphenamine (0.3 to 0.6 g) should be given every week for 12 to 15 weeks, followed by 10 weekly injections of either potassium bismuth tartrate (0.2 g), bismuth salicylate (0.2 g), or sodium potassium bismuth tartrate suspended in oil, each dose yielding from 0.05 g to 0.1 g metallic bismuth. If

possible the schedule should be arranged to finish up with an arsenical, and treatment should be continued to term. If the diagnosis is made late in pregnancy combined arsenical and bismuth therapy is indicated. Even late inadequate treatment may mean a living possibly non-syphilitic child.

Miscellaneous

The Importance of Coordinating the Military and Naval Medical Services With the Civilian Medical Profession.

The following excerpts are quoted from a paper by Captain Harry G. Armstrong, M. C., U. S. Army. This was the Sir Henry Wellcome prize essay for 1936 and was published in the March, 1937, issue of *The Military Surgeon.*

"Coordination of the military and naval medical services with the civilian medical profession is important primarily because upon it depends our whole scheme of national defense. Nothing is more essential to the welfare of our country than that every physician in it have a clear, well-defined understanding of his obligations to self, to others, and to country.

"In our attitude toward the probability of war, it is important to distinguish between being militaristic and being realistic. It makes no difference whether, as individuals, we love war or abhor it; seek war or avoid it; prepare for war or ignore it—war will eventually come."

"Medicine, or the lack of it, has always played an extremely important part in war. In past centuries the lack of adequate medical service has destroyed more armies than have been destroyed by enemy forces. An army can only be as effective as its medical service."

"During our Revolutionary War and the War of 1812 there were no effective medical organizations, and medical men distinguished themselves as commanders of combat troops. In our Civil War the ratio of deaths from disease to those from wounds was 3.4 to 1; in the Spanish-American War 7 to 1, and in the World War 2 to 1, in our Army."

"Modern warfare is characterized by sudden and unexpected attacks; large numbers of troops; mechanized and highly mobile ground forces; armament and weapons of increased fire power; deadly aerial combat arms; all with industrial and population centers as the primary object of attack."

"Military medicine must be kept abreast of armaments and tactics. Two field armies will require 47,000 medical officers. One-third of the whole civilian medical profession in the United States will be needed. The other two-thirds of the physicians in this country will have care of the civilian population. Once war starts, the civilian physician is as important as a member of the regular medical services. One may be a specialist in plastic surgery and the other in military medicine; both are equally obligated, both vitally necessary."

"There are many convenient points available for contact between the members of the medical services and the general medical profession: (1) Medical Schools; the importance of military medicine as a part of every physician's mental equipment should be emphasized, and faculty members induced to include in their lectures the fundamentals of that science. (2) Local and State Health Boards; the members of local and state health boards would be charged in wartime with the organization and establishment of an effective medical service for the care of the civil population. This great task cannot be undertaken without a knowledge of military medicine. (3) Medical Societies; county medical societies can show their interest in members of the uniformed services by extending an invitation to join the society, attend meetings, clinics, and conferences, and by requests for papers on medico-military subjects. (4) State and National Medical Societies may be expected to open their journals to well-prepared papers on military medicine or to discussions of the role of the civil practitioner in war. (5) Special Organizations; Since members of civilian organizations and institutions will become key men during a national emergency, it is the duty of uniformed medical research personnel to keep them informed of new developments, and the obligation they will be requested to assume. (6) Veterans' Administration; its medical officers can aid greatly in the selection of personnel fit for war service, as their field is unique in medicine, being concerned with the rehibilitation of human wreckage of the last war. (7) U. S. Public Health Service is concerned primarily with improving the general health of the civilian population. The control of epidemic disease either in peace or war depends on a close co-operation between public health and military authorities. The spread of disease from troops to civilians or *vice versa* can be avoided only by this mutual effort. The nation's manpower depends to a great extent

upon the national health. In the event of an invasion of our country by a major power, the logical agency to organize medical services for population centers open to enemy attack would be the Public Health Service. (8) Organized Reserves and National Guard; these are the backbone of our national defense. Owing to lack of funds, only about one-third of the active reserves required for a national emergency are now available."

"It is not too much to believe that cooperation of the reserve, National Guard, and regular services with the general medical profession could induce sufficient numbers of civil physicians to become actively interested in military medicine, and that our present medical unpreparedness be materially lessened thereby."

NELSON MERCER, M. D.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the State Health Department's bureau of communicable diseases, as compiled for the month of February, shows the following cases compared with the same month in 1936:

	1937	*1936*
Typhoid and Paratyphoid	11	18
Diphtheria	72	74
Scarlet Fever	137	218
Measles	844	384
Meningitis	36	94
Poliomyelitis	2	1
Rocky Mountain Spotted Fever	1	0
Typhus Fever	0	0
Undulant Fever	1	3
Tularaemia	3	1
Smallpox	1	0

INDUSTRIAL HYGIENE ACTIVITIES

The Department's bureau of industrial hygiene reports that 113 plants, representing a population of 27,180 already have been covered in its preliminary survey activities. This part of the work will be completed by June 1st. The data being obtained then will be tabulated for the Department's use in its cooperative effort with industry to reduce health hazards.

AN ENLARGED SANITATION PROGRAM

The Department is applying a revised sanitation program in the rural health areas. It involves all the factors connected with sanitating the home, including sewage disposal, wells, screening, drainage, fly breeding, private milk supplies, and general sanitation.

In order to attain this objective, a complete survey of every home visited by sanitation officers will be required, together with the necessary number of follow-up visits.

Enlightened public cooperation, through health education activities on the part of the central office, local health departments, and field representatives, is being relied upon to make this program effective.

SEWAGE TREATMENT IN VIRGINIA

According to figures recently prepared by the Department's bureau of sanitary engineering, twenty-nine sewage treatment plants are maintained by municipalities and sanitary districts. In addition, there are thirty-one plants for State institutions, colleges, governmental reservations and unincorporated communities. The aggregate population served by these plants is 153,180.

SUICIDES IN VIRGINIA

Figures compiled by the Department's bureau of vital statistics indicate that the Virginia suicide rate has increased 140 per cent since 1913. This is in line with the rise reported for the majority of other jurisdictions throughout the country. It indicates that the tendency toward self-destruction definitely is increasing.

Ages from ten to ninety years are represented, with the largest number of suicides in Virginia during 1936 being in the twenty to fifty-five age group.

Self-inflicted death claimed but twenty-three females to each one hundred males, although the proportion of Virginia's population at the last census was 50.2 per cent and 49.8 per cent female. Incidentally, rates for cities were somewhat higher than for rural areas.

Taking solid or liquid poisons, poisonous gas, hanging, drowning, jumping from high places, and the use of cutting instruments and fire arms, the last mentioned being employed by the greatest number, were the means used for self-destruction.

PERSONNEL NOTES

Dr. L. W. Foker, epidemiologist, and George W. Pierce, sanitary engineer, of the Minnesota State Department of Health, are making a detailed study of the activities now being conducted by the Department's bureau of industrial hygiene. These repre-

sentatives came to Virginia for intensive training at the suggestion of the U. S. Public Health Service. Their work in this Commonwealth is preparatory to the establishment of an industrial hygiene program to be set up by Minnesota. The course of instruction, including administrative detail, plant surveys, and technical problems, will be concluded the latter part of this month.

New Members

Doctors who have become members of the Medical Society of Virginia since the list published in the October, 1936, issue of the MONTHLY are:

Dr. John Willis Abbitt, Portsmouth.
Dr. Clarence Edward Arnette, Alexandria.
Dr. Milton Hamlin Bland, Norfolk.
Dr. Nathan Bloom, Richmond.
Dr. Copeland Connelly Bowers, Dunbar.
Dr. Oren Douglas Boyce, Rural Retreat.
Dr. Alexander Gustavus Brown, III, Richmond.
Dr. S. W. Budd, Richmond.
Dr. Holmes Gantt Byrd, Louisa.
Dr. Edward Kyle Disney, McClure.
Dr. Julian Booth Doss, Pen Hook.
Dr. George Andrew Duncan, Norfolk.
Dr. Hamilton Douglas Fitzpatrick, East Radford.
Dr. William Samuel Francis, Jr., Marion.
Dr. Clarence Dearborn Freeman, Jr., Portsmouth.
Dr. Wesley Fry, Alexandria.
Dr. Thomas Lorimer Gemmill, Petersburg.
Dr. Thomas Archer Gibson, Winchester.
Dr. I. Harry Goldman, Richmond.
Dr. Holland Harvey Green, Hillsboro.
Dr. Randolph Bryan Grinnan, Jr., Norfolk.
Dr. Herman Henry Hines, Clinchco.
Dr. Joseph Martin Hitch, Charlottesville.
Dr. Robert Dewey Hollowell, Charlottesville.
Dr. William McCleery Junkin, Fredericksburg.
Dr. James Clarence LeFon, Dumbarton.
Dr. William Samuel Lloyd, Bumpass.
Dr. Brooke Baylor Mallory, Lexington.
Dr. William Morison Moir, Charlottesville.
Dr. Robert Sterling Montgomery, South Hill.
Dr. Joseph Mahon Moore, Alexandria.
Dr. William Perry Moore, Jr., Norfolk.
Dr. Frederick McCulloch Morrison, Lynchburg.
Dr. Lawrence John Motyca, Norfolk.
Dr. Irwin Matthew Nuckols, Mt. Sidney.
Dr. Edward M. Parker, Emporia.
Dr. Rupert Wendell Powell, Roanoke.
Dr. John Gordon Rennie, Richmond.
Dr. Wyatt Earle Roye, Brook Hill.
Dr. James Edward Rudasill, Markham.
Dr. John Hamilton Scherer, Richmond.
Dr. Mack Irvin Shanholtz, Bristol.
Dr. George Henry Smith, Jr., Winchester.
Dr. Ralph Wierman Stoneburner, Edinburg.
Dr. Robert Vaughan Terrell, Richmond.
Dr. Clarry C. Trice, Richmond.
Dr. Porter Paisley Vinson, Richmond.
Dr. George Zur Williams, Richmond.
Dr. Julian Howard Yeatman, Fork Union.
Dr. Louis Bernard Ziv, Portsmouth.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. FRANKLIN D. WILSON, 5352 Studeley Avenue, Norfolk.
President-Elect—MRS. JAMES B. STONE, 15 Maxwell Road, Richmond.
Corresponding Secretary—MRS. C. C. SMITH, 1219 West Princess Anne Road, Norfolk.
Recording Secretary—MRS. F. O. PLUNKETT, 2 Riverview Place, Lynchburg.
Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.
Chairman, Press and Publicity—MRS. W. AMBROSE MCGEE, 4107 Kensington Avenue, Richmond.

Mid-Winter Board Meeting.

The Executive Board of the Woman's Auxiliary to the Medical Society of Virginia helds its mid-winter meeting on Wednesday, February 3rd, in Norfolk.

There were twenty members present.

The president, Mrs. Franklin Wilson opened the meeting with prayer.

In the absence of Mrs. F. O. Plunkett, Mrs. Harold Potter acted as recording secretary.

The minutes of the Post Convention Board meeting were accepted as read.

Mrs. King made a motion which was seconded and carried that henceforth of each year's minutes one copy should be filed with the Archives in Richmond and one copy be sent to the president.

A motion was made and carried that reports be accepted as a whole.

Mrs. Stone, Organization Chairman, reported forty-two letters had been written to presidents of County Societies with reference to organizing Auxiliaries. To date six replies had been received, of these three were favorable, and the Committee was at present in correspondence with the doctors' wives whose names had been given as prospective auxiliary organizers.

Mrs. Peake, finance chairman, presented the following budget:

INCOME RECEIVED FROM DUES AND "SINKING FUND"

Mim.—Dues	$50.00
Sinking Fund	30.00
	$80.00

DISBURSEMENTS

President's expense	$25.00
President-elect	15.00
Expense of State meeting (printing)	12.00
Other printing	10.00
Miscellaneous expense	18.00
Total	$80.00

The following recommendations were read by Mrs. Peake, as Finance Chairman:

1. That a sum not to exceed $25.00 be set aside annually for the expenses of the president; a sum not to exceed $15.00 for the president-elect as organization chairman; that the treasurer's expenses be paid in full.

2. That all chairmen of standing committees be asked to assume their own expenses to the amount of one dollar ($1.00).

3. That each County Auxiliary be annually acquainted with the outstanding needs of the State Organization and asked to make the "Sinking Fund" a part of their yearly budget.

4. That all expense accounts be sent to the finance chairman by October 1st, of each year.

5. That the name "Sinking Fund" be changed to "Maintenance Fund" as it is included in the budget.

The motion was made by Mrs. Peake that the recommendations be accepted as read, Mrs. King seconded, and the motion was carried.

That the Chairmen and members of the Standing Committees were actively at work was shown by interesting reports from the following: Program and Health; Public Relations; Historian and *Hygeia.*

The chairman for *Hygeia,* Mrs. John R. Hamilton, reported total subscriptions and renewals numbering eighty-one, since October, 1936.

Mrs. Reuben Simms reported a balance of $71.17 in the treasury.

Mrs. Fletcher J. Wright, chairman of the Tuberculosis Bed Fund reported that a sum of $109.50 had been received to date. There was some discussion as to the dispensing of this fund, and a motion was made and carried that it be left entirely to the discretion of the chairman and committee. A further motion was made and carried that the name of the patient benefiting from this fund be known only to the committee.

Mrs. Wilson announced that Mrs. J. W. Smith of Gloucester had been appointed chairman of Belroi.

Mrs. Hawes Campbell took the chair while Mrs. Wilson read the president's report which was accepted as read.

Mrs. Wilson in her report recommended that a handbook for County Auxiliaries be adopted, this handbook to include an Official Health Program and to be revised and simplified but patterned after the National Handbook for State Auxiliaries, also that a committee be appointed by the president to compile this handbook and that it be presented at the annual meeting for adoption. This recommendation was accepted. Mrs. William Lett Harris, Mrs. Joseph Bear and Mrs. Fletcher Wright were appointed to compile the handbook.

Reports were read from seven County Auxiliaries, Alexandria, Norfolk, Mid-Tidewater, Princess Anne, Warwick, James City, New Kent, and Petersburg Unit to the Fourth District Medical Society.

Mrs. Southgate Leigh presented the following resolutions on the death of Dr. J. Allison Hodges:

THEREFORE, BE IT RESOLVED, by the Auxiliary to the Medical Society of Virginia that in the passing to a higher service of Dr. James Allison Hodges, this organization has suffered the keen loss of a most faithful friend, a staunch supporter of our work, with the ability and will to serve whenever our welfare was concerned. He will be greatly missed;

AND RESOLVED, that these resolutions be spread upon the minutes of this meeting, and that they be published in the VIRGINIA MEDICAL MONTHLY.

The members present stood in silent memory to Dr. Hodges.

Mrs. Harris read the proposed Constitution and By-Laws for the Auxiliary to the Medical Society of Virginia which were accepted with a rising vote of thanks to Mrs. Harris and her committee, Mrs. Joseph Bear and Mrs. Fletcher Wright. The Constitution and By-Laws will be presented for final adoption at the annual meeting in October.

The meeting then adjourned for a very delightful lunch at the home of the president, Mrs. Wilson.

After lunch the meeting was addressed by Dr. P. St. L. Moncure, his subject being venereal diseases and the part to be taken in educating the public (especially those of high school age) and its prevention and cure. Dr. Moncure reminded us that in as far as the public was concerned the State Medical Society advised that the matter of venereal diseases be handled very carefully, as for many reasons it was a difficult subject to bring to the attention of the laity. Mrs. King made a motion that a letter be sent to the State Medical Society advising that the Auxiliary is at all times willing and ready to give its services whenever needed in bringing before the public the widespread dangers of venereal diseases and asking that a plan of procedure be outlined for the Auxiliary. The motion was seconded and carried.

The following were appointed for a nominating Committee: Mrs. M. N. King, Mrs. Southgate Leigh, and Mrs. H. S. Snead.

The members were reminded that the county reports should reach the chairmen and president not later than April 1st, in order that Virginia's annual report to the National Auxiliary Meeting in June can be sent by May 1st. Mrs. Jones made a motion to invite Mrs. Frank N. Haggard, President of the Auxiliary to the Southern Medical Society, to the annual meeting to be held this year in Roanoke, Va. Mrs. Jones made a second motion to invite also the National President. Both motions were seconded and carried.

Mrs. Wilson asked the privilege of appointing the delegates to the national convention later. Motion was made

and carried that minutes of this meeting be sent to each member of the Board.

There being no further business the meeting adjourned.

MABEL POTTER (MRS. HAROLD W. POTTER),
Secretary pro-tem.

Our Representatives at the National Meeting.

The following members of the State Auxiliary have been appointed as delegates to the meeting of the Auxiliary to the American Medical Association in Atlantic City, June 7-11: Mrs. Wm. Lett Harris, Norfolk; Mrs. Joseph Bear, Richmond; and Mrs. Fletcher J. Wright, Petersburg. Their alternates are: Mrs. B. A. Doggett, Norfolk; Mrs. T. N. Hunnicutt, Newport News; and Mrs. Reuben F. Simms, Richmond, respectively.

The Auxiliary to the Richmond Academy of Medicine

Is planning a card party April 9th at 2:30 at the John Marshall Hotel. The proceeds go to the three beds the auxiliary has endowed in the new Tubercular Ward at the Crippled Children's Hospital.

The auxiliary has also decided to give a certain amount each year for specimen jars for the Pathological Museum in the Richmond Academy of Medicine.

The auxiliary has a Mary Gray Hodges Memorial Fund which it expects to enlarge each year—part of this fund goes for the State bed fund at the T. B. Sanitorium for a doctor or his dependent.

LOIS L. MCGEE.

The New Kent-James City Medical Auxiliary

Met at the home of Mrs. J. R. Tucker with six members present. A business session was conducted by the president, Mrs. T. B. Henderson.

Several letters of interest were read and our health program discussed.

During our social hour, we greatly enjoyed several solos by our hostess, Mrs. Tucker.

Our program for our May meeting will consist of a Memorial service for our late Doctor King, a much beloved physician of Williamsburg and the college for many years.

(MRS. L. V.) MABEL HENDERSON,
Reporter.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Eli Lilly & Co.

Protamine, Zinc & Iletin (Insulin—Lilly).

Protamine, Zinc & Iletin (Insulin—Lilly), 10 c.c.

Parke, Davis & Co.

Liver Extract (Intramuscular)—Parke, Davis & Co., 10 c.c. vials.

E. R. Squibb & Sons.

Protamine Zinc Insulin—Squibb.

Protamine Zinc Insulin—Squibb, 10 c.c.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Ichthammol.—Bitumen Sulphonatum, N. F. V.—Ammonium Ichthosulfonate.—"Ichthammol is obtained by the destructive distillation of certain bituminous schists, sulfonating the distillate, and neutralizing the product with ammonia." N. F. For the actions and uses of Ichthammol see general article, Sulfoichthyolate Preparations and Substitutes, New and Nonofficial Remedies, 1936, p. 424.

Ichthyol.—A brand of Ichthammol, N. F. Merck & Co., Inc., Rahway, N. J.

Protamine Zinc Insulin.—A preparation of insulin modified by appropriate addition of protamine and a zinc salt. When this modified preparation in its precipitated form is brought into uniform suspension, each cubic centimeter contains 40 units of insulin together with from 0.30 to 0.50 mg. of protamine and from 0.08 to 0.10 mg. of zinc. The preparation contains, in addition, sufficient disodium acid phosphate to maintain its hydrogen ion concentration at not more than that corresponding to pH=7.1 and not less than that corresponding to pH=7.4. The preparation also contains approximately 1.6 per cent of glycerine as an agent for achieving of isotonicity, and 0.20 per cent of cresol or 0.25 per cent of phenol as a preservative. The effects of protamine zinc insulin are as described under Insulin-N.N.R., except that the blood-sugar-lowering action of protamine zinc insulin is more prolonged and has its greatest effect in above twelve or twenty-four hours after administration. In view of this prolonged action, the chief indications for its use are in those cases where unmodified insulin is unable to provide control, without being administered in several doses daily, or is unable to provide adequate control unaccompanied by frequent hypoglycemic reactions, ketosis, or evidence of pronounced fluctuations in blood sugar levels. The usefulness of protamine zinc insulin in cases of diabetic coma, in diabetes complicated by infection, or in the event of surgical operation has not been definitely established. Protamine zinc insulin is to be injected only subcutaneously. In most cases its administration more often than once a day is not required.

Protamine, Zinc & Iletin (Insulin, Lilly).—A brand of protamine zinc insulin. It is marketed in 10 c.c. vials, each cubic centimeter containing 40 units of insulin, together with protamine and approximately 0.08 mg. of zinc. Eli Lilly & Co., Indianapolis, Inc.

Protamine Zinc Insulin—Squibb.—A brand of protamine zinc insulin. It is marketed in 10 c.c. vials, each cubic centimeter containing 40 units of insulin together with protamine and approximately 0.08 mg. of zinc. E. R. Squibb & Sons, New York. (*J. A. M. A.*, February 20, 1937, p. 640.)

Propaganda for Reform

Fresh Compressed Yeast, Dried Yeast, and Yeast Extracts are Special Purpose Foods.—The Council on Foods reports that these products are useful for increasing the vitamin B_1 and G content of the diet. Fresh yeast and dried yeast if taken in sufficient quantity have a mild laxative effect on many persons. Compressed fresh yeast, dried yeast and yeast extracts therefore come within that class of foods designated as "special purpose foods" in the Rules and Regulations of the Council on Foods. To be eligible for acceptance, the labels and advertising for these yeast products shall prominently display the designation "special purpose food," list the ingredients other promimity to product name, and give the vitamin B_1 and G unitages determined by biologic assay. (J. A. than yeast substances, state the percentages in close M. A., October 17, 1936, p. 1303.)

Dextrose—Its Place in the Diet of Normal Adults.—In recent years chemically pure dextrose, usually prepared from cornstarch, has become available and is being promoted largely to replace part of the sucrose of the diet. Dextrose occurs naturally in many ordinary foods, in honey, in grape juice and other fruit juices, and in maple syrup. Dextrose is obtained as one of the products of the digestion of cane sugar and milk sugar, and it is the end product of the digestion of starches and of maltose. The wide occurrence of dextrose in foods, the vast literature of biochemical and physiologic investigations of this substance, and the claims made in advertising have led the Council on Foods to consider it desirable to publish a brief report on the significance of dextrose in the diet of the normal adult. On the basis of available evidence the Council has summarized the claims which in its opinion are justified for dextrose: The sweetness of dextrose is about 75 per cent of that of sucrose. Dextrose should not be termed the physiologic sugar, for such designation permits the connotation that dextrose is a preferred food, which is not compatible with known facts. It is incorrect to state that it is instantly absorbed. Dextrose is well utilized as a food, but it possesses no practical advantages over many other carbohydrates in combating ketosis produced by either a high fat diet or by fasting, nor does dextrose itself have unique advantages when administered by mouth to prevent or relieve fatigue or to maintain muscular efficiency to a high degree. Dextrose is produced by the digestion of the most important dietary carbohydrate, starch. The evidence which indicates any superiority, under normal conditions, of dextrose ingested as the free sugar over dextrose ingested as the polysaccharide starch is not convincing. (*J. A. M. A.*, February 13, 1937, p. 556.)

Book Announcements

Books Available to Readers.

Among the recent acquisitions to the Medical College of Virginia Library available to our readers upon request are:

Lewis, T.—Vascular Disorders of the Limbs.
Luten, D.—Clinical Use of Digitalis.
MacLean & Smedley.—Lecithin and Allied Subjects.
Maliniak, J. W.—Sculpture in the Living: Rebuilding the Face and Form by Plastic Surgery.
Myerson, A. *et als.*—Eugenical Sterilization.
Read, B. E.—Chinese Medicinal Plants from the Pen Ts'ao Kang Mu.
Reid, E. G.—The Life and Convictions of William Sydney Thayer.
Roaf, H. E.—Physiology.
Shafer, H. B.—The American Medical Profession, 1783 to 1850.
Sheehan, J. E.—Plastic Surgery of the Nose.
Snow, J.—Cholera.
Taussig, F. J.—Abortion, Spontaneous and Induced.
Van Dyke, H. B.—The Physiology and Pharmacology of the Pituitary Body.
Verzar, F.—Abortion From the Intestine.
Von Haller, A.—A Dissertation on the Sensible and Irritable Parts of Animals.
Warren, H. C.—Dictionary of Psychology.
Weil, A.—Textbook of Neuropathology.
West, C. J., ed.—Annual Survey of American Chemistry.
Whitnall, S. E.—The Study of Anatomy.
Wilder, L.—The Mayo Clinic.
Zahorsky, J.—Synopsis of Pediatrics.

Synopsis of Ano-Rectal Diseases. By LOUIS J. HIRSCHMAN, M. D., F. A. C. S., Ex-Vice-President, A. M. A.; Ex-Chairman, Section on Gastroenterology and Proctology, A. M. A.; Ex-President, American Proctologic Society; Professor of Proctology, Wayne University, etc. St. Louis. The C. V. Mosby Company. 1937. 12mo of 288 pages. With one hundred and seventy-four text illustrations and six color charts. Leatherette. Price, $3.50.

This book offers student and general practitioner an accurate and concise source of information on the diagnosis and treatment of the common-place ano-rectal diseases. It avoids or passes with scant mention the major affections of the anus, rectum or colon of so much interest to the specialist as obviously beyond the scope of so limited a synopsis.

XUM

Allergy of the Nose and Paranasal Sinuses. A Monograph on the Subject of Allergy as Related to Otolaryngology. By FRENCH K. HANSEL, M. D., M. S., Assistant Professor of Clinical Otolaryngology, Washington University School of Medicine; Fellow of the Association for the Study of Allergy; etc. St. Louis. The C. V. Mosby Company. 1936. Octavo of 820 pages. With fifty-eight text illustrations and three color plates. Cloth. Price, $10.00.

Hansel's Allergy of the Nose and Paranasal Sinuses, a book of some eight hundred pages published in 1936, is a compilation of the literature on allergy and its manifold manifestations with the major emphasis, as its title suggests, on its relation to the pathology of the nose and paranasal sinuses. Each chapter is followed by a bibliography of the articles and books on which the author has drawn. These bibliographies reach such gigantic proportions as 159 references to one chapter, as that following the one on the treatment of allergy.

The object of the book as the author states in his introduction "is to familiarize the otolaryngologist with the clinical features of allergy related to the field of otolaryngology, to review the various phases of the subject itself, and to point out the frequent association of the nasal with the other manifestations, particularly asthma, gastrointestinal allergy, allergic skin diseases, and allergic headache. This monograph also serves the purpose of familiarizing the allergist and the pediatrician with otolaryngologic phases."

He reviews the literature on the physiology, biochemistry, bacteriology, histology and pathology of the nose and paranasal sinuses with reference to allergy. There are chapters on the nature of allergy, its origin, its relation to foreign serums and allergens, its biochemistry and its clinical manifestations. He discusses the methods of diagnosis by history taking, testing, examination, X-ray and bronchoscopy. Separate chapters are devoted to the clinical manifestations of allergy such as skin eruptions, gastrointestinal symptoms, headaches, asthma and hayfever. The various methods of treatment from hyposensitization to local measures such as surgery and ionization are reviewed. A chapter is devoted to the special features of allergy in the fields of the otologist and ophthalmologist. Of particular interest to the pediatrician is the chapter on allergy and infections of the paranasal sinuses in children which includes the author's own observations and the review of 36 articles on this subject.

The book is an excellent reference work. The review of the literature is extensive and complete. It is well indexed. It is in no way a handbook to guide the general practitioner, for the mass of references which in many cases are widely divergent in results and conclusions would be most confusing to one with small experience in the field of allergy. The author fails to summarize satisfactorily in the light of his own experience the information he has presented. This, however, may not be a criticism of the writer but perhaps rather the general state of confusion at present manifest in the field of allergy.

EMILY GARDNER, M. D.

Physical Therapeutic Method in Otolaryngology. By ABRAHAM R. HOLLENDER, M. D., F. A. C. S., Associate in Laryngology, Rhinology and Otology, University of Illinois College of Medicine; Fellow of American Academy of Ophthalmology and Otolaryngology. St. Louis. The C. V. Mosby Company. 1937. Octavo of 442 pages. With 189 Illustrations. Cloth. Price, $5.00.

In textbooks in otolaryngology, physical measures for the treatment of diseases in this special field are omitted or given most cursory attention. For this reason a volume edited by an authority and having contributors whose standing is beyond dispute supplies a real need. It should therefore find a hearty welcome to the work-shelf of the library of every otolaryngologist.

The book although brief gives a clear and adequate account of the methods available. It is noteworthy for the restraint shown in appraising the benefits to be derived from the application of physical methods. This is especially desirable since so much in this field has been written which has been inspired more by a missionary than a scientific spirit.

There are two general divisions of the book. The first gives in understandable and not too technical language the theory of the different modalities available. There are adequate charts and illustrations.

In the second division, various authors especially well qualified discuss the indications, clinical application and results of the various methods.

A bibliography at the end of every chapter makes readily available further study in any subject of special interest to the reader.

For the practitioner whose college courses in chemistry and physics are dim memories, the chapter on definitions is of value.

EMANUEL U. WALLERSTEIN, M. D.

Virginia Medical Monthly

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Editorial

The Richmond Bicentennial.

There are many persons,—and there is some excuse for their point of view,—who believe all centennials, sesquicentennials, bicentennials and tricentennials, et cetera, are born of some energetic chamber of commerce with a propensity for advertising and consequently they will have none of them. But to the thoughtful, whatever their origin, these celebrations cannot fail to appeal, for they offer an opportunity to glean from the past its lesson for the inspiration of the present and the molding of the future.

Such an occasion is afforded the medical profession of Richmond by the coming bicentennial celebration of the founding of their city. The assembling of facts and materials essential to the exhibits held in connection with such a celebration will do more than stimulate professional pride. It should go a long way toward promoting good will and understanding among a large group of lay visitors.

The plans of the committee in charge of medicine's part in Richimond's Bicentennial are elaborate, proposing to show two hundred years of progress in the professions of medicine, dentistry, pharmacy and nursing. They call for an exhibit to be set up under three general divisions, the professional exhibits, the hospital exhibits and the exhibits of the Medical College of Virginia. By chance the medical College of Virginia celebrates its one hundredth birthday this year and due largely to the happy suggestion of President Sanger it will utilize the occasion of the Richmond Bicentennial to put at least a part of its own centennial exhibit on display, thus drawing a wider audience and more publicity than would be possible in any other year. The College exhibits will be put on by departments, each department not only showing its own growth and development from inception to the present day but also attempting to give an insight by an appropriate demonstration into some scientific problems in which it is particularly interested or in which it feels that it is making some worth while contribution. It is never unwise for taxpayers and legislators to see practical demonstrations of dollars wisely spent, and it is not unreasonable to hope that some nostalgic home-comer filled with pride at the work of this growing institution will "come down handsomely."

The hospitals of the city in a series of well planned booths will portray their work and progress since organization, while the remaining part of the exhibit will be given over to the professions. Nursing as reflected in the I. V. N. A., the teaching of nursing and the practice of nursing will have a prominent place. One hopes that the old colored nurse who assisted at some of the first operations in Richmond, holding a cold sweet potato in one hand and a sponge in the other, will be represented

to set off the smartly tailored, immaculate beauty of the modern nurse. The reproduction of an old apothecary shop with its aroma of pungent drugs, long rows of bottles, ponderous scales, contusion mortars, dazzling carboys and huge species jars will be shown as the strange ancestor of the modern drug store. Three dental offices will show progress in dentistry from the earliest times.

The medical profession will attempt to show with appropriate models the evolution of the doctor's modes of transportation, and the evolution of the doctor's dress; also changes that have come in medical literature, how a few Latin tomes of an earlier day have multiplied into an enormous present day periodical literature in all languages. A pneumonia sick room of two hundred years ago will be reconstructed by the side of a modern pneumonia sick room; an operating room two hundred years ago by the side of a modern operating room. One exhibit will display old and new medical instruments; one, as many books written by Virginia doctors as it is possible to assemble. The activities of the City Board of Health, the Richmond Tuberculosis Association and Pine Camp Hospital and the Children's Memorial Clinic will be depicted. There will be a booth devoted to Hospital Insurance and the Medical Service Bureau; a gallery of pictures and a display of portraits of several hundred Richmond doctors past and present. The medical illustrators and photographers will also have a part in the exhibits.

From the enthusiasm that now prevails and the number of doctors, dentists, pharmacists and nurses taking part in the plans, there is every reason to believe that organized medicine will be contributing its bit to the real value of the celebration of such an important event in the history of our state as the founding of its capitol.

Horsley and Bigger's Surgery.

Sixteen years ago Dr. J. S. Horsley published a one volume work on *Operative Surgery*. Since that time this work has been through four revisions. The last is just off the press and is by far the most impressive. It is just twice the size of former editions and the author has for the first time associated with himself other authors. Isaac A. Bigger, professor of surgery at the Medical College of Virginia, shares with him an almost equal amount of contributed material. Fully a third of the volumes is the work of contributors in special fields: C. C. Coleman in neurological surgery; John S. Horsley, Jr., in plastic surgery; Austin I. Dodson in urological surgery, and Donald M. Faulkner in orthopedic surgery. The two volumes consist almost entirely of fresh material, very little of former editions having been preserved in the studied efforts of the authors to make this a new and thoroughly up to date work on operative technique.

The volumes are serviceably bound and are in large clear type on good paper. The illustrations by Miss Helen Lorraine, artist also of the former editions, are excellent and add materially to their value. Among general surgeons who wish to brush up on some surgical technique the night before an operation, among surgical internes and as parallel reading for senior medical students they should find a wide field of usefulness. Dr. Horsley, Dr. Bigger and their collaborators are to be congratulated for having brought out an outstanding work on surgery. No other Virginia surgeons have ever produced anything like it.

Polluted Bathing Beaches.

The problem of public bathing places is always a serious one for the sanitarian. It is difficult to measure the immediate and remote effects of submerging the human body in polluted water which must enter eyes, ears, nose and throat, and a fair portion of which may be actually swallowed. Such is the hazard of public bathing. It has ever been hinted that sea bathing is not as free from pollution as is usually thought. The statement has been made that in this state communities adjacent to bathing beaches are discharging their sewage in unpleasant proximity to them, creating if not an actual health hazard, at least disturbing thoughts for those of us who during some period of the summer are wont to take our daily dip in the surging sea.

A Five Per Cent Mortality.

There was a time when many people died of appendicitis. Still too many die of it, but it is generally recognized that the earlier the operation the lower the mortality, and that if all cases of appendicitis were operated on immediately there would be practically no deaths.

Can something similar to this ever be said of pneumonia? Cecil's recent report of a 5 per cent mortality in a series of 160 cases of Type I pneu-

mococcus pneumonia treated within the first twenty-four hours with specific serum raises this point.

The old mortality for pneumonia was 33 per cent. For some time it has been known that in Type I serum treatment lowered the death rate to 15 per cent, and that even better results could be expected when the serum was administered very early in the disease. Serum administered before the third day was believed to give a 10 per cent mortality. Cecil believes that given within the first twenty-four hours it will reduce the mortality to 5 per cent.

This would mean a tremendous saving in lives. 50,000 persons die annually in the United States of pneumonia. 65 per cent of pneumococcus pneumonia is affected by serum. If the early administration of serum can in these cases reduce the death rate from 33 per cent to 5 per cent, there is every reason for the Medical Society of Virginia to push vigorously its campaign to lower the mortality from this disease.

Why Use Polyvalent Sera?

In the treatment of pneumonia there are two kinds of serum available. There is no question about the efficacy of the monovalent concentrated globulin that is now being extensively employed in Groups I, II, V, VII, VIII, and XIV pneumococcus pneumonia, but grave doubts are to be entertained concerning the general use of polyvalent pneumonia serum. This type of serum is unpurified and largely due to its high albumen content it is frequently associated with reactions. Most of these untoward effects are immediate and fall into the well known classification of thermic reactions. To see a critically ill patient subjected to one of these reactions is to arouse serious doubt as to the wisdom of a course which may cause them. It is also to be remembered that polyvalent serum is a shot gun procedure which our present rapid and refined methods of sputum typing rarely justify. Moreover there are few occasions when one need use polyvalent serum. Neither the excuse that sputum is unobtainable from the patient, nor the excuse that the patient is seen first in the middle of the night is any longer justification for the use of polyvalent serum. When pneumonia is generally regarded as a medical emergency and the tempo of medical diagnosis is geared to this idea monovalent serum will displace polyvalent serum entirely.

Department of Clinical and Medical Education of the Medical Society of Virginia

Pediatrics.

On March 13 Dr. Arena completed the postgraduate course in pediatrics which he had been conducting in Pittsylvania, Patrick and Henry Counties. Meetings were held each week in Chatham, Danville and Martinsville and were well attended in each place.

During the five weeks to April 17 the course will be offered in Amherst, Appomattox and Campbell Counties. Separate meetings for white and colored doctors will be held in Lynchburg, and a third series of lectures and clinics will be held in Altavista.

Preliminary arrangements have been made for giving the course in Albemarle and Augusta Counties from April 19 to May 22.

Obstetrics and Gynecology.

Dr. Shamburger, from February 8 to March 13, conducted his course in Mid-Tidewater and in the Northern Neck of Virginia. During the next five weeks he will meet with the doctors on Church Hill, in Richmond, and will offer the course in Mineral, for Louisa County and places nearby, and in Bowling Green, for the physicians of Caroline County.

At his last meetings in Mid-Tidewater and the Northern Neck, Dr. Shamburger was assisted by Dr. O. L. Anderson, of the United States Public Health Service, and Dr. L. J. Roper, of the Bureau of Venereal Diseases, who discussed maternal phases of the treatment of venereal diseases.

Future Programs.

The Department is arranging a schedule for both clinicians for the spring, summer and early fall and will be glad to hear from societies interested in either of the postgraduate courses. Requests should be addressed to the Acting Executive Secretary, John Alex. Rorer, Box 1487, University Station, Charlottesville, Va.

XUM

Proceedings of Societies

The Petersburg Medical Faculty

At a special meeting on February 22, 1937, unanimously adopted the following resolutions with regard to birth and syphilis control:

WHEREAS, A serious state of affairs demanding immediate attention, cooperation and action now confronts this great Nation of ours in regard to conditions which from a medical standpoint are preventable and controllable and have a direct bearing not only on our present generation but the future as well; and

WHEREAS, Our venereal or so-called social diseases have increased to an alarming extent necessitating active intervention by the Federal Government under the direction of the Surgeon-General of the United States Public Health Department. There are nearly 2,000,000 people who become infected with gonorrhea annually in the United States and nearly 700,000 apply annually for treatment. Over 500,000 new cases of syphilis occur in the United States each year and over 600,000 are under treatment at any one time. It is estimated, however, that only one in ten persons infected with syphilis are under treatment. From a survey made in 1936 by the Medical Society of Virginia it was reported that fifty-one Virginians out of each 1,000 suffered from syphilis and it is also estimated that not less than 150,000 need treatment at this time; and

WHEREAS, Our mental defectives have also increased to an appalling extent within the past ten years—over 30 per cent for the Nation and 46 per cent for the State of Virginia. Recent estimates indicate that there are more than 6,000,000 people in the United States who have been, are, or will eventually be admitted to a mental institution, and it is further estimated that an additional 12,000,000 are of such low mentality as not to be self-supporting. There are 400,000 patients in our insane institutions against 400,000 other medical and surgical patients in our 7,000 hospitals. There are 240,000 confirmed epileptics and 600,000 definitely feebleminded, and many are at large to procreate unchecked. There are 12,000 murders committed annually in this country and the maintenance prison cost for criminals alone in 1928 was $29,298,640. There is an average increase of 400 mental cases admitted to our State hospitals in Virginia yearly and in 1932 the increase approached 1,000. According to a conservative estimate, there are approxixmately 18,000 feebleminded and epileptics alone in Virginia, since it has been shown that there is one definitely feebleminded person to every 200 and one confirmed epileptic to every 500 persons in the United States. The yearly admission rate for Virginia's five State hospitals is over 2,000. If the past ten years repeats itself, the State must provide for larger hospitals and greater facilities since these institutions are already filled beyond capacity; and

WHEREAS, California began legal eugenic sterilization in 1910 and twenty-eight States and as many foreign countries have since followed suit. Virginia, in 1924 was the second State to see the wisdom of passing a similar law. Prior to January 1, 1935, there have been 20,063 eugenic sterilizations in the United States. In Virginia, the State hospitals and the Colony have eugenically sterilized 2,203 defectives prior to July 1, 1935. During the first year of its National sterilization law, Germany sterilized 56,224; and

WHEREAS, Our infant and maternal mortality rate in the United States is entirely too high. We rank twenty-sixth among the civilized nations of the world. There are still 100,000 babies dying annually in the first month of life and there are 100,000 every year born dead. Furthermore, some 16,000 to 18,000 women die each year in the United States from conditions associated with childbirth; and

WHEREAS, There has been a notorious increase in the number of criminal abortions (estimated at well over 1,250,000 annually) in the United States resulting in a large percentage of deaths as well as untold suffering and invalidism; and

WHEREAS, The depression has emphasized the need for reliable, scientific birth control advice. Families on relief rolls are having from 48 to 60 per cent more children than self-supporting families of equal stratum. Last year (1936) 65 per cent of the babies born in this country came from women on relief; and

WHEREAS, There are at present 225 birth control clinics in the United States under medical direction; and

WHEREAS, Birth control has been endorsed by numerous medical organizations, many prominent individuals in the medical world, and by numerous religious, political, social, and educational groups; and

WHEREAS, In a national poll conducted by the American Institute of Public Affairs in 1936 every State in the Union approved the legalization of birth control information. The States voted in the affirmative from 53 to 90 per cent and the nation 70 per cent. By groups, the smallest affirmative vote—58 per cent—came from persons on relief; the highest—94 per cent—from college students; and

WHEREAS, In 1935, the medical profession of Virginia approved birth control by an affirmative answer of 86.5 per cent in a questionnaire conducted by the VIRGINIA MEDICAL MONTHLY. A similar poll in Michigan disclosed 83.3 per cent favored Birth Control; and

WHEREAS, On November 30, 1936, the United States Circuit Court of Appeals for the Second Circuit handed down to the medical profession its bill of rights in the field of contraception. The Court's decision marks the successful termination of a sixty-year struggle to make clear that the Federal obscenity laws do not apply to the legitimate activities of physicians. That a doctor may now prescribe

a contraceptive in the interests of life and health, symbolizes a notable victory; now, therefore, be it

RESOLVED (FIRST), That we, the Petersburg Medical Faculty hereby endorse reliable, scientific birth control conducted under medical supervision in the belief its use in the field of preventive medicine will greatly aid in diminishing destitution and dependency, in the promotion of health, peace, and happiness and an improvement in the quality of the race; and

RESOLVED (SECOND), That we also endorse and recommend, under medical supervision, compulsory eugenic sterilization of every hereditary mental defective in our State institutions, including the habitual criminal before being paroled or discharged, and such inmates of Federal institutions should not be exempt; and

RESOLVED (THIRD), That we heartily endorse the efforts of those engaged in the better management and ultimate control of our venereal diseases and pledge our fullest cooperation; and

RESOLVED (FOURTH), That we recommend the passage by our State Legislature, after corroboration with the medical profession, of the necessary laws requiring an adequate health certificate before marriage; and

RESOLVED (FIFTH), That in adopting the above resolutions we do so with the sincerest interest of our people at heart not only for the present generation but for the future generations to come and firmly believe that as an important phase of preventive medicine they will form a strong link toward making for a stronger, healthier, happier and more intelligent race; and

RESOLVED (SIXTH), That a copy of these resolutions be given to the press and to the VIRGINIA MEDICAL MONTHLY for publication.

Rockingham County Medical Society.

During the past several months, this Society has had splendid meetings which have been addressed by Dr. Hugh H. Trout of Roanoke, Dr. Porter Vinson of Richmond, Dr. W. W. Waddell, Jr., of the University of Virginia, and Dr. W. W. S. Butler of Roanoke.

On April the 12th, Dr. Wright Clarkson of Petersburg will address the Society on some phase of the cancer problem, and the May meeting will be devoted to the subject of tuberculosis.

Officers of the Society at this time are: President, Dr. Noland M. Canter; vice-president, Dr. Howard Armstrong, and secretary-treasurer, Dr. Paul S. Hill. All of these are of Harrisonburg.

The Patrick-Henry Medical Society

Held its first quarterly meeting for 1937 at the Riverside Hotel in Bassett, Va., on January the 8th, with a good attendance. Routine business for the year was discussed, after which the following officers were installed: President, Dr. B. A. Hopkins of Stuart; vice-president, Dr. E. M. McDaniel of Martinsville, and secretary-treasurer, Dr. Algernon K. Turner of Martinsville.

Lynchburg Academy of Medicine.

At the regular meeting of the Academy held on March 1st, Dr. George Lawson, of Roanoke, presented an interesting paper on Silicosis.

Dr. John Wyatt Davis is president and Dr. C. E. Keefer secretary of the Academy.

Albemarle County Medical Society.

At the February meeting of this society, Dr. W. E. Bray, of the University of Virginia, spoke on "Blood Studies and the General Practitioner."

Dr. C. C. Coleman of Richmond talked on "Early Treatment of Head Injuries" at the March meeting.

The James City-New Kent Medical Society.

Held its March meeting in Toano, with Dr. B. I. Bell, of Williamsburg, presiding.

Drs. J. McCaw Tompkins and E. Trible Gatewood, of Richmond, presented papers entitled "Essential Hypertension" and "Throat Infections with Blood Disorders," respectively.

Roanoke Academy of Medicine.

At the March meeting of the Academy, the following program was presented: Care of the Aged by Dr. Blanton P. Seward; Syphilis—"The Great Imitator," by Dr. S. B. Cary; The Physician as a Citizen by Dr. A. M. Showalter, Christiansburg, and Some Principles Governing Body Water, the Exchange of Body Fluids in Disease and Endocrine Factors by Dr. Rufus Morison, Abingdon.

Hanover County Medical Society.

At the bi-monthly meeting of this Society held in Ashland on March 2nd, papers were presented by Dr. A. Chambers Ray, Jr., and Dr. Linwood Farley, both of Ashland. Dr. Judson Vaughan, also of Ashland, is president, and Dr. T. E. Stanley, Beaverdam, secretary.

The Southside Virginia Medical Association

Held its regular quarterly meeting on March 9th, in Franklin, with Dr. G. M. Naff, president, presiding. There were more than thirty members present. The program was as follows: Dr. T. Dewey Davis, on "Dermatomyositis with Report of Two Cases"; Dr. Frank S. Johns, on "Surgery in Gall Bladder Disease"; Dr. P. D. Camp, on "The Treatment of

Congestive Heart Failure"; Dr. Otis L. Anderson, on "The Problems of Early Syphilis," and Dr. J. B. Dalton, on "Osteomyelitis." All speakers are from Richmond. Following the meeting, a banquet was held at the Stonewall Jackson Hotel.

Dr. R. L. Raiford, Franklin, is secretary of the Association, and with Dr. J. J. Grizzard of Drewryville and Dr. T. Addison Morgan of Franklin, served as the reception committee at the meeting in Franklin.

The next meeting will be in Petersburg the second Tuesday in June.

News Notes

Arrangements Being Made for Roanoke Meeting.

The Roanoke Academy of Medicine, hosts for our sixty-eighth annual meeting, have named Dr. W. L. Powell general chairman in charge of arrangements for that time. While all the members are interested in and working for the success of the meeting, the following will be the sub-chairmen:

Dr. M. A. Johnson, Jr., Committee on Halls and Hotels.

Dr. Frank A. Farmer—Commercial Exhibits.

Dr. W. W. S. Butler—Scientific Exhibits.

Dr. C. T. Burton—Entertainment.

The Patrick Henry has been selected as hotel headquarters and the dates are October 12, 13 and 14.

Early Diagnosis Campaign for Tuberculosis.

With Virginia still losing nearly two thousand people every year from tuberculosis, and a death rate which is second from the highest among the Southern States and fourth in the nation (excluding four health resort states), the Virginia Tuberculosis Association is entering upon its tenth annual Early Diagnosis Campaign to "Uncover Tuberculosis By Modern Methods."

Tuberculosis in the high school age, among young mothers and in men in industry is being particularly stressed. All over Virginia county and city tuberculosis organizations are appealing to all types of groups to seek expert medical advice, take advantage of the tuberculin test and X-ray, and to try in every way to find tuberculosis in its early stages. The importance of breaking the contact between children and an open case of tuberculosis is being urged by the speakers in an effort to stem the spread of the disease.

In 1936 there were 1,912 deaths in the state from tuberculosis and an estimated total of 18,000 to 20,000 people suffering from this disease—2,405 new cases were reported in 1935. As the average length of treatment is five and one-half years, and the loss of wages and the cost of medical care is estimated for this period at nearly $1,000.00 per year, Virginia sustains a loss of over $19,000,000 annually from tuberculosis.

Literature on tuberculosis is available to physicians and their patients free upon application to the Virginia Tuberculosis Association, or its local branches.

Dr. A. E. Murray,

Beaverdam, Va., has been appointed medical examiner for the World War Veterans by the Veterans Administration in Washington, D. C.

Dr. R. S. Griffith

Who has been confined to his home in Waynesboro, Va., as the result of a recent automobile accident, is reported to be getting along very well.

The Southeastern Surgical Congress.

Owing to flood conditions, the Congress held its annual meeting in Charlotte, N. C., instead of Louisville, Ky., as at first scheduled, early in March, under the presidency of Dr. John Darrington of Yazoo, Miss. Dr. Fred W. Rankin of Lexington, Ky., succeeded to the presidency; Dr. Thos. C. Davison of Atlanta, Ga., was named president-elect, and Dr. B. T. Beasley, Atlanta, was re-elected secretary. Dr. Julian L. Rawls of Norfolk, Va., was elected vice-president.

Married.

Dr. Carroll Bracey Robertson, class of '33, Medical College of Virginia, and Miss Mary Elizabeth Peebles, both of Jackson, N. C., February 27.

Dr. Charles William Reavis, class of '36, Medical College of Viriginia, and Miss Allie Virginia Cleek of Warm Springs, Va., a recent graduate from

the School of Nursing of the Medical College of Virginia, March 20th. Dr. Reavis has been interning at St. Luke's Hospital, Richmond.

The Virginia Conference of Social Work

Will hold its second annual meeting in Richmond, April 8, 9 and 10, at which time the Medical Society of Virginia is, for the second consecutive year, sponsoring the Division on Public Health and Medical Care. Dr. Basil B. Jones, of Richmond, was appointed chairman of this Division for the 1937 Conference and is being assisted by a committee consisting of Dr. P. W. Miles of Danville, Dr. D. C. Wilson of the University of Virginia, Dr. W. P. Jackson of Roanoke, and Dr. Fred P. Fletcher of Richmond.

In view of the emphasis which is this year being placed upon the problem of syphilis by the U. S. Public Health Service, the committee has felt it appropriate to concentrate the program of the Division on Public Health and Medical Care upon the social and public health aspects of syphilis, and will hold its session on Thursday afternoon, April 8, from 2 to 5 P. M., at the Jefferson Hotel, with the following program:

2 to 3 P. M.

A State Program for Venereal Disease Control—Dr. L. J. Roper, State Department of Health.

Discussion by Dr. J. Morrison Hutcheson, President, Medical Society of Virginia.

A Local Program for Venereal Disease Control—Dr. Ennion Williams, Assistant Medical Director, Life Insurance Company of Virginia.

Discussion by Dr. W. Brownley Foster, Director, Department of Public Welfare, Richmond, Virginia.

3 to 4 P. M.

Social Aspects of Late Medical Syphilis—Dr. Dudley C. Smith, Professor of Dermatology and Syphilology, University of Virginia, Department of Medicine.

Discussion by Dr. R. W. Garnett, Health Officer and Director of Public Welfare, Danville, Virginia.

Congenital Syphilis—Dr. Kinloch Nelson, Physician in Charge of Syphilology Clinic, Medical College of Virginia, Out-Patient Department.

Discussion by Dr. Louise Galvin, Instructor in Pediatrics, Medical College of Virginia.

JOINT MEETING WITH MENTAL HYGIENE DIVISION

4 to 5 P. M.

Social Service Aspects of Syphilis and Follow-Up Care—Mrs. Norman Ingraham, Chief Social Worker, University of Pennsylvania Hospital.

Discussion by Dr. William Branch Porter, Professor of Medicine, Medical College of Virginia.

Social Aspects of Neurosyphilis—Dr. Thomas L. Gemmill, Psychiatrist, Central State Hospital.

Discussion by Dr. O. B. Darden, Associate in Neuropsychiatry, Medical College of Viriginia.

Findings and recommendations from this meeting will be presented at the business meeting of the Conference on Saturday morning, April 10. Dr. Edwin Harper is serving as chairman of the Findings Committee.

In view of the efforts which are being made to develop a statewide program of venereal disease control by the State Department of Health and the effects of this program upon various localities in the state, it is hoped that the meeting of the Division on Public Health and Medical Care will be widely attended by physicians and public health officials throughout the state.

PROGRAM

At this Conference, the Virginia Mental Hygiene Society is sponsoring the following program:

2 to 3 P. M.

The Mental Hygiene Program for the State of Virginia—Dr. Howard R. Masters, Associate in Neuropsychiatry, Medical College of Virginia.

The Scope of Psychiatry in Handling Social Problems—Dr. David C. Wilson, Professor of Psychiatry, University of Virginia.

Discussion by Dr. Harvie DeJ. Coghill, Director, Children's Memorial Clinic.

3 to 4 P. M.

A Panel Discussion Centering Around the State Hospital Patient:

a. The Problem of Getting Him Hospitalized.
b. The Problem He Presents in the Hospital.
c. Hospital Problems in Regard to His Discharge.
d. Preparation for His Return to Community Life.

Discussants:

a. Dr. C. E. Holderby, Psychiatrist, Eastern State Hospital.
b. Mrs. Margaret Wyatt, Supervisor of Study Division, Children's Bureau.
c. Dr. James N. Williams, Director, Bureau of Mental Hygiene, Virginia Department of Public Welfare.

4 to 5 P. M.

Joint Meeting with Division on Public Health and Medical Care.

This program is given in Division on Public Health and Medical Care.

Dr. H. M. Taylor,

Jacksonville, Fla., a past president of the Southern Medical Association, was the guest speaker at the meeting of the Richmond Academy of Medicine on March the 9th.

Community Hospital Nurses' Home Opened.

The formal opening of the new nurses' home at the Southside Community Hospital, Farmville, Va., was held the middle of March, at which time the afternoon was given over to an informal reception by the nurses and an inspection of the home. This addition to the hospital plant was made possible by private subscriptions which were met by another gift from the Commonwealth Fund which gave a large sum for the hospital nine years ago.

The Tri-State Hospital Association,

Composed of the Hospital Associations of Virginia, North and South Carolina, will hold its annual meeting in the City Memorial Auditorium at Raleigh, N. C., on April 22, 23 and 24. An attendance of approximately 500 is expected. Dr. Lewis E. Jarrett of the Medical College of Virginia Hospital division is president of the Virginia group.

Lecture Open to Physicians.

The Pi Chapter of Alpha Epsilon Iota extends a cordial invitation to the medical profession to attend a lecture on "The Nature and Inheritability of Cancer," to be given by Dr. Maud Slye, well-known research worker in this field. Dr. Slye comes here from the Otho S. A. Sprague Institute of the University of Chicago, on Wednesday, April the 21st, and will speak in the auditorium of the Richmond Academy of Medicine.

Campaign to Reduce Cancer.

Under the direction of the American Society for the Control of Cancer the Virginia Division of the Women's Field Army was organized last month with Mrs. R. W. Copeland, of Hopewell, as state commander. The new organization, a part of a national movement designed to reduce the mortality from cancer through education of the public in the cancer problem, will function as a permanent health organization.

Women over the state have formed in districts and localities for the purpose of carrying on the work started with a campaign March 21-27 when funds were raised to place the organization on a permanent basis. It will be the purpose of the organization to urge the public to present themselves to their family doctors at least once annually and to acquaint people with the earlier manifestations of cancer through an educational campaign which will be carried on through the years. The movement is under the supervision of the American Society for the Control of Cancer and has the endorsement of state and local medical societies.

Dr. Wright Clarkson, Petersburg, is chairman of the executive committee in Virginia, with Dr. I. C. Riggin, Commissioner of Public Health, and Dr. J. H. Scherer, Richmond, as the other members. Dr. J. Shelton Horsley, Richmond, Dr. J. W. Cox, Alexandria, field representative of the American Society for the Control of Cancer, and Mrs. Copeland are ex-officio members. This committee will appoint an advisory committee composed of physicians throughout the state who will cooperate with the Women's Field Army.

In addition there is in each Senatorial district in Virginia a physician appointed by the executive committee to act as consultant for the movement in that district. These are: Dr. Frank H. Redwood, Norfolk; Dr. Vernon A. Brooks, Portsmouth; Dr. H. G. Dickie, Massies Mill; Dr. J. E. Rawls, Suffolk; Dr. Wright Clarkson, Petersburg; Dr. F. R. Crawford, Farmville, Dr. G. A. Stover, South Boston; Dr. J. R. Bailey, Keysville; Dr. Don Preston Peters, Lynchburg; Dr. I. C. Harrison, Danville; Dr. Harry W. Bachman, Bristol; Dr. S. B. Nickels, Clinchport; Dr. C. B. Bowyer, Stonega; Dr. W. R. Williams, Richlands; Dr. W. C. Caudill, Pearisburg; Dr. R. P. Hawkins, Jr., Clifton Forge; Dr. Hugh H. Trout, Roanoke; Dr. F. M. Leech, Lexington; Dr. R. P. Bell, Staunton; Dr. J. H. Deyerle, Harrisonburg; Dr. Hunter H. McGuire, Winchester; Dr. W. H. Goodwin, University; Dr. H. S. Daniel, Louisa; Dr. M. B. Hiden, Warrenton; Dr. Llewellyn Powell, Alexandria; Dr. E. T. Ames, Montross; Dr. W. S. Cox, West Point; Dr. Horace F. Hoskins, Saluda; Dr. Samuel Downing, Newport News; Dr. Paul W. Howle, Richmond.

Medical College of Virginia News.

A portrait of Dr. Samuel Chiles Mitchell, president of the Medical College of Virginia in 1913-14 and an outstanding figure in education in this country for the past forty years, was presented to the College at exercises held in the auditorium of the Richmond Academy of Medicine on February the 25th. The portrait was presented to the College by Dr. Allen W. Freeman, dean of the School of Hygiene and Public Health of the Johns Hopkins University, Baltimore, and was accepted by Dr. William T. Sanger for the College. Remarks were also

made by L. T. Stoneburner, III, president of the Student Body. Mr. Wortley F. Rudd, dean of the School of Pharmacy, presided.

Commencement exercises for the ninety-ninth session of the College will be held on May the 30th, 31st and June the 1st. At the final exercises on the 1st, the honorary degree of Doctor of Sceince will be conferred upon Dr. I. C. Riggin, State Health Commissioner of Virginia.

Dean Rudd of the School of Pharmacy has been loaned to Columbia University of New York City, to assist in reorganizing that institution's pharmacy department. Under the arrangement made, Dean Rudd is spending alternate weeks at Columbia. Associated with him in this work are Dr. W. G. Crockett, president of the American Association of Colleges of Pharmacy, and Dr. Ernest Little of Rutgers University, chairman of the executive committee of the National Association.

Dr. Rudolf Leuchtenberger has recently come to Richmond from Germany, and will be associated with the bacteriological and chemistry department of the College as research worker in immunology and infectious diseases.

News From the University of Virginia, Department of Medicine.

The second Alpha Omega Alpha lecture for the current session was delivered on February 15th by Dr. Julian M. Ruffin, of the Medical Department of Duke University. Dr. Ruffin spoke on the subject of Pellagra.

At the meeting of the University of Virginia Medical Society on February 22nd, Dr. C. C. Coleman, of Richmond, spoke on Recent Advances in Neuro-Surgery.

Dr. I. C. Riggin, State Cmmissioner of Health, Richmond, Dr. W. H. Frost, Professor of Epidemiology in the Johns Hopkins School of Hygiene and Public Health, Baltimore, and Dr. H. S. Mustard, of the Department of Public Health Administration of the Johns Hopkins School of Hygiene and Public Health, have recently delivered addresses before the senior medical class.

Dr. Edwin P. Lehman attended the Southeastern Surgical Congress, meeting in Charlotte, N. C., March 8-10, and spoke on the subject of Subphrenic Abscess.

News from New York Polyclinic Medical School and Hospital.

Dr. James P. Croce has recently been appointed Professor of Internal Medicine, and Dr. Howard S. Jeck has been appointed Professor of Urology.

The School and Hospital has opened its new X-ray Department. Entirely new and up-to-date equipment has been installed in the new building. The installation is completely shockproof. There are five radiographic rooms to cover all phases of diagnostic roentgenology, and a shockproof mobile unit is included, as well as a complete X-ray Therapy Department.

Dr. Charles Gilmore Kerley, Emeritus Professor of Pediatrics, will deliver a special afternoon lecture on Wednesday, April 14, 1937, at 2:30 P. M. on Making Milk Safe For Babies (A review of the progress made during the past 50 years, with lantern slides of photographs depicting pioneers in improved milk conditions).

Dr. Beverley R. Tucker,

Richmond, Va., was the guest speaker at the organization meeting of the North Carolina Society for Mental Hygiene held recently in Raleigh.

Dr. Lewis Harvie Taylor,

Former Virginian residing in Washington, D. C., newly elected president of the visiting staff of Sibley Memorial Hospital, Washington, was recently honored by a testimonial dinner at the Mayflower Hotel, that city, with many notable physicians attending.

The Clinch Valley Medical Society

Will hold its Spring meeting at Norton, Va., on April the 17th at which time an excellent program is expected. The speakers will include Dr. J. Morrison Hutcheson, president of the Medical Society of Virginia; Dr. I. C. Riggin, State Health Commissioner, and Drs. Otis Anderson and L. J. Roper, in charge of the program for the control of venereal diseases in Virginia.

Dr. S. H. Rivers of Calvin and Dr. C. B. Bowyer of Stonega are president and secretary, respectively.

Gill Memorial Spring Graduate Course.

The following doctors have registered for the Annual Spring Graduate Course of the Gill Memo-

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rial Eye, Ear and Throat Hospital, Roanoke, to be held at the Hospital on April 12-17:

Dr. George E. Adkins, Jackson, Miss.
Dr. J. T. Allison, New Kensington, Pa.
Dr. Frank L. Alloway, Kingsport, Tenn.
Dr. A. L. Bass, Louisville, Ky.
Dr. K. S. Blackwell, Richmond, Va.
Dr. Arthur A. Bobb, Reading, Pa.
Dr. Malcolm Bronson, Hamilton, Ohio.
Dr. E. C. Bryce, Richmond, Va.
Dr. G. Edward Campbell, Johnson City, Tenn.
Dr. H. B. Chalfant, Kennett Square, Pa.
Dr. Price Clayton, Russellville, Ala.
Dr. V. F. Couch, Winston-Salem, N. C.
Dr. Gilbert L. Dailey, Harrisburg, Pa.
Dr. J. P. Donahoe, Scranton, Pa.
Dr. W. F. Elliott, Lincolnton, N. C.
Dr. George B. Garlick, Bridgeport, Conn.
Dr. W. Wallace Gill, Richmond, Va.
Dr. L. R. Hedgpeth, Lumberton, N. C.
Dr. R. E. Houston, Greenville, S. C.
Dr. Thomas H. Huey, Jr., Anniston, Ala.
Dr. J. K. Hutcherson, Louisville, Ky.
Dr. J. W. Jervey, Greenville, S. C.
Dr. Emmett L. Jones, Cumberland, Md.
Dr. Daniel F. Keegan, Bridgeport, Conn.
Dr. T. J. King, Thomasville, Ga.
Dr. Edwin N. Maner, Savannah, Ga.
Dr. J. F. Martin, Dunn, N. C.
Dr. J. E. Miller, Huntsville, Ala.
Dr. C. D. Miller, Carbondale, Pa.
Dr. E. P. Mitchell, Defiance, Ohio.
Dr. H. L. Mitchell, Lexington, Va.
Dr. B. F. Mowry, Findlay, Ohio.
Dr. Edward L. McCarthy, Canonsburg, Pa.
Dr. R. B. McCord, Rome, Ga.
Dr. J. J. Nowak, Buffalo, N. Y.
Dr. G. T. Almstead, Savannah, Ga.
Dr. Will R. Pryor, Louisville, Ky.
Dr. W. C. Parsons, Birmingham, Ala.
Dr. E. C. Pope, Birmingham, Ala.
Dr. Richard D. Roderick, Jermyn, Pa.
Dr. E. D. Root, Jamestown, N. Y.
Dr. J. L. Sanders, Greenville, S. C.
Dr. W. Hamilton Smith, Hagerstown, Md.
Dr. Jay D. Smith, Harrisburg, Pa.
Dr. Charles D. Sneller, Peoria, Ill.
Dr. C. Dwight Townes, Louisville, Ky.
Dr. Erwin W. Troutman, Columbus, Ohio.
Dr. Frank Turchik, Bridgeport, Conn.
Dr. E. Vermillion, Welch, W. Va.
Dr. J. R. Vermillion, Princeton, W. Va.
Dr. Earl LeRoy Wood, Newark, N. J.
Dr. Claude T. Wolfe, Louisville, Ky.
Dr. J. D. Williams, Ashland, Ky.

Dr. Robert A. G. Jones,

Class of '33, University of Virginia, Department of Medicine, has opened offices at Yorktown, Va., for general practice. He served an internship at the Delaware Hospital in Wilmington, and was later acting health officer of Albemarle County during part of 1934 and 1935. Dr. Jones has recently been doing special work in tuberculosis and mental hospitals.

Dr. D. C. Smith,

Professor of dermatology and syphilology at the University of Virginia, was the guest speaker at the March meeting of the Alexandria Medical Society.

Grace Hospital Celebrates Twenty-Fifth Anniversary.

On March 12th, Grace Hospital in Richmond held open house to which the public was invited, the occasion being the celebration of its twenty-fifth anniversary. In 1932, a five-story annex was added and the original building completely done over and refurnished with the most modern furniture and scientific equipment available.

Dr. D. C. Boatwright,

Marion, Va., was elected a member of the new Board of Directors of the Bank of Marion, the middle of March.

The Southwestern Virginia Medical Society

Is holding its Spring meeting in Pulaski, April the 8th and 9th, under the presidency of Dr. John J. Giesen of Radford. The guest speaker at this time will be Dr. Emil Novak of the Johns Hopkins University, Baltimore, whose subject will be "The Endocrine Basis of Gynecological Organotherapy." Members presenting papers will be: Drs. H. W. Bachman, M. I. Shanholtz, Guy C. Richardson and Nat H. Copenhaver of Bristol; Dr. F. H. Smith of Abingdon; Dr. T. K. McKee of Saltville; and Drs. W. P. Jackson, R. M. Hoover and J. D. Willis of Roanoke. The meeting will open with a banquet on Thursday evening and close with luncheon on Friday. Dr. H. W. Bachman of Bristol is secretary-treasurer of this organization.

The local committee in charge of arrangements for the meeting is composed of Drs. D. S. Divers, Wm. I. Owens, R. H. Woolling and Booker Lee.

Dr. William F. Wild,

For some time in charge of the Nansemond-Suffolk-Isle of Wight Health District, is now connected with the New York City Department of Health in a Civil Service capacity, as District

Health Officer, assigned to the Williamsburg-Greenpoint District of Brooklyn.

Dr. W. B. Castle

Of the Boston, Mass., City Hospital, was the guest speaker at the regular meeting of the Norfolk County Medical Society on March the 15th, his subject being "Treatment of Anemia from the Standpoint of the General Practitioner."

Dr. Wright Clarkson,

Petersburg, Va., upon invitation, recently gave an address before the York, Pa., Medical Society on the subject of Cancer Control.

Interested in Civic Work.

Dr. William D. Prince of Stony Creek, Va., and Dr. T. F. Jarratt of Jarratts, Va., have been named as members of the committee for membership in the Sussex Unit of the Citizens Road League of Virginia.

Dr. Charles H. Bondurant,

Recently of Bedford, Va., has given up general practice and accepted a position as Assistant Surgeon in the Reserve Corps, U. S. Public Health Service Dispensary in Washington, D. C., February 2, 1937.

American Medical Golfers Play in Atlantic City.

The American Medical Golfing Association will hold its twenty-third annual tournament at Seaview Country Club, Atlantic City, on Monday, June 7th. Thirty-six holes of golf will be played in competition for the seventy trophies and prizes in nine events.

Dr. W. Albert Cook of Tulsa, Okla., is president of the Association. All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Write the secretary, Bill Burns, at 2020 Olds Tower, Lansing, Michigan. Participants in the tournament are required to furnish their home club handicap, signed by the club secretary, and no handicap over 30 is allowed except in the Kickers' (Blind Bogey). Only active members may compete for prizes.

Doctors Active in Sons of American Revolution.

At the recent election of officers of the Sons of the American Revolution, Dr. L. S. Foster of Williamsburg and Dr. Cary E. Via of Norfolk were re-elected as members of the board of managers for the coming year.

Veterans of Base Hospital No. 45 Meet.

At the annual meeting of the Veterans of Base Hospital No. 45, familiarly known as the McGuire Unit, held the latter part of February, Dr. Greer Baughman was elected commander for the following year; Robert Quarles, vice-commander, and L. C. Bird, adjutant. All are of Richmond. Following the business session at the McGuire Clinic, there was a banquet at the John Marshall Hotel.

Dr. J. Meriwether Hurt,

Blackstone, Va., has been named president of the Rotary Club of that place for the year beginning July 1.

Dr. Andrew D. Parson

And family of Richlands, Va., recently returned from a pleasure trip to St. Augustine, Miami and other points of interest in Florida.

Changes Among Health Officers.

Dr. Charles C. Hedges, graduate of the University of Virginia Medical School, has been appointed Health Officer of the Isle of Wight-Nansemond Health District.

Dr. R. Campbell Manson is now Acting Health Officer of the Arlington County Health Department.

One-Hundredth Anniversary.

The St. Louis Medical Society from April the 5th to 7th will commemorate its one-hundredth anniversary with interesting exercises. The program will include a Reenactment of the First Meeting, History of the St. Louis Medical Society, Aims and Accomplishments of Medical Societies and Ours in Particular on the first evening; Medical Progress in the Last One Hundred Years, Our Library, and a Play—"Mushrooms Coming Up," on the evening of the 6th, and the last evening will be held the centennial dinner, followed by talks on The Art of Medicine, The Great Physician, and the Doctor and the State. This scientific program is to be followed by dancing and a social evening.

To Represent Society at Statewide Safety Conference.

Dr. J. Morrison Hutcheson, president of the Medical Society of Virginia, has appointed Dr. J. W.

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Preston of Roanoke to represent this organization at the Statewide Safety Conference which is to be held at the Patrick Henry Hotel, Roanoke, Va., on May 17th and 18th.

For Sale—

Victor V2555 Vertical Fluoroscope complete with Patterson screen and Coolidge 5-30 X-ray tube. In good condition. Dr. T. G. Hardy, Farmville, Va. (Adv.)

Obituary Record

Dr. William Ashton Reese,

Prominent physician of Petersburg, Va., died at his home in that city on March the 21st, after a long illness. He was forty-seven years of age and a graduate in medicine from the Medical College of Virginia in 1915. Dr. Reese had practiced in Petersburg since 1920, coming there from Prince George County. He was a member of his State and local medical societies, the staff of the Petersburg Hospital, and of a number of civic and fraternal organizations. His wife and three daughters survive him.

Dr. William Preston Hoy,

Leading physician and civic worker of Petersburg, Va., died March 23rd in a Philadelphia Hospital following an operation. He had been in bad health for about a year. Dr. Hoy was a native of Petersburg and sixty years of age. He graduated from the former University College of Medicine, Richmond, in 1899, and practiced for a while in Williamsburg, since which time he has been in his native city. Dr. Hoy was a prominent Rotarian and a Mason and had been a member of the Medical Society of Virginia for thirty-seven years. His wife and a daughter survive him.

Dr. Robert Lemmon,

Post Surgeon at the Virginia Military Institute, Lexington, Va., died at his home in that place on March the 6th, after an illness of nearly a year. He was born near Lynchburg, Va., fifty-eight years ago and graduated in medicine from the University of Virginia in 1902. For several years thereafter, he served in hospitals in New York, Norfolk and Baltimore, and for eight years he was post surgeon in the U. S. Army. Retiring from that service in 1912, he engaged in private practice in Lynchburg until he accepted the post at V. M. I. in August, 1930. He had been a member of the Medical Society of Virginia for some years. His wife and two sons survive him.

Dr. Baxter C. Culler,

Martinsville, Va., died at his home in that place on March the 15th, after a short illness with lobar pneumonia. He was born in Kernersville, N. C., thirty-nine years ago and studied medicine at Tulane University of Louisiana from which he graduated in 1922. He is survived by his wife and two children.

Dr. John Joseph Cullinan

Died at his home in Hampton, Va., on February the 26th, after a short illness with pneumonia. He was a native of Knoxville, Tenn., and forty-eight years of age. Dr. Cullinan graduated in medicine from the former Lincoln Memorial University of Knoxville in 1910 and later took up post-graduate study. He came to Virginia in the Fall of 1920 as senior surgeon in the psychopathic ward at the Veterans Administration Hospital (formerly the Soldiers Home) and had since had charge of that work. His wife survives him.

Dr. William Alanson White,

Internationally known psychiatrist and superintendent of St. Elizabeth's Hospital, Washington, D. C., for more than thirty years, died on March the 7th, death being due to pneumonia. He held many positions of honor, including the first presidency of the International Congress on Mental Hygiene in 1930, and was the author of a number of books on neurology and psychiatry. His wife and a brother survive him.